WIN! TREND T5 ROUTER and CraftPro table worth £600

Issue 291 £4.25

Good Woodworking

The No.1 magazine for aspiring designer makers

THE HOME OF WOODWORKING
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BIG PROJECT

How to construct French doors

THREESOME

Make a handy nest of tables

FLAPPER

Phil devises a counter flap

UP & DOWN

Ed tiles his roof & builds stairs

IT'S A GEM

Turn this earring stand for her

LOOK NORTH...

MEET THE LADS

York makers with success written all over them

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- Kit & Tools: Andy tests Milwaukee, Trend & Tormek kit
- Woodwork foundations: Michael cuts mitres & grooves
- Easy caning: Jeff shows you how to restore a chair seat

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Welcome

Back from the Yorkshire road trip I'm the person you might run away from, the one who says, "I must just show you this holiday pic," and then has you squinting at their IPhone as they thumb through the lot… but you've *really* got to look at the work of our two Yorkshire lads, **p56** – one of Luke Caley's designs is pictured above. In the next issue we reach the final leg, when we unveil a revolutionary and very special dovetail saw made in Scarborough. Back at home Andy King is excited by Milwaukee launches including the Hole Hawg, **p16**, and by the Tormek T4, **p20** and Trend drivers, **p18** – and speaking of Trend, to celebrate this company's 60th anniversary, **p64**, we've got a T5 router and CraftPro table for you to win, **p66**. Jason Fisher matches trad style with cosy double glazing when he builds French doors, **p36**, Alan Willey makes a nested trio of tables, **p64**, Phil Davy builds a flap to extend his kitchen worktop, **p74**, and Les Thorne turns an ornate earring stand, **p80**. Michael Huntley talks mitres and angles, **p30**, and Finishing Touch starts a new series on the history of tools – this month looking at screws, **p90**.

Andrea Hargreaves, Editor

Andrea Hargreaves
Editor

Andy King
Technical Editor

Dave Roberts
Consultant Editor

Phil Davy
Consultant Editor

We endeavour to ensure all techniques shown in Good Woodworking *are safe, but take no responsibility for readers' actions. Take care when woodworking and always use guards, goggles, masks, hold-down devices and ear protection, and above all, plenty of common sense. Do remember to enjoy yourself, though.*

Contact us

Editorial 01689 869848 **Email** andrea.hargreaves@mytimemedia.com
Post *Good Woodworking*, Enterprise Way, Edenbridge, Kent TN8 6HF
See the panel on the right for a full list of magazine contacts

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BACK ISSUES & BINDERS
Tel: 0844 848 8822
From outside UK: +44 133 291 2894 (International)
Email: customer.services@myhobbystore.com

EDITORIAL
Editor: Andrea Hargreaves
Technical Editor: Andy King
Consultant Editors: Phil Davy, Dave Roberts

CONTRIBUTORS
Andrea Hargreaves, Andy King, Stephen Simmons, Jeff Gorman, Michael Huntley, Jason Fisher, Alan Willey, Edward Hopkins, Phil Davy, Les Thorne

PRODUCTION
Design Manager: Siobhan Nolan
Designer: Malcolm Parker
Illustrator: Michael Lindley
Retouching Manager: Brian Vickers
Ad Production: Robin Gray

ADVERTISING
Business Development Manager: David Holden
Email: david.holden@mytimemedia.com
Tel: 01689 869867
Commercial Sales Manager: Rhona Bulger
Tel: 01689 869891

SUBSCRIPTIONS
Subscriptions manager: Kate Hall
Subscriptions: Sarah Pradhan
Tel: +44(0)1858 438798

MANAGEMENT
Publisher: Julie Miller
Chief Executive: Owen Davies
Chairman: Peter Harkness

Tel: 0844 412 2262
From outside UK: +44 (0)1689 869896

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http://twitter.com/getwoodworking

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Good Woodworking

April 2015

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Cover photograph by Mark Cass

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CEP1

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B&D KW750K - GB	750W	2mm	£57.99	£69.59

‡ was £65.99 inc.VAT

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*Black & Decker

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‡ was £63.59 inc.VAT

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Clarke

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Makita

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*110V in stock

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CON300	230X115mm	330w	£29.98	£35.98
Makita BO455*	112X102mm	200w	£54.99	£65.99

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CPT800	1250w	120mm	£189.98	£227.98
CPT1000 NEW	1500w	120mm	£269.98	£323.98

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CWL1000

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Tiger 8/36	1.5 Hp	6.3	24ltr	£109.98	£131.98
Tiger 11/250	2.5Hp	9.5	24ltr	£119.98	£143.98
Tiger 8/510	2Hp	7.5	50ltr	£129.98	£155.98
Tiger 11/510	2.5Hp	9.5	50ltr	£149.98	£179.98
Tiger 16/510	3 Hp	14.5	50ltr	£219.98	£263.98
Tiger 16/1010	3 Hp	14.5	100ltr	£269.98	£323.98

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BOSCH

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* DIY

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Bosch POF1400ACE	1400	0-55	£74.99	£89.99

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CSS16V	120w	400-1700	£79.98	£95.98
CSS400C*	90w	550-1600	£99.98	£119.98

* Includes flexible drive kit for grinding/polishing/sanding

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makita

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Fury 3	210/25.4	60/200mm	£119.98	£143.98
Einhell TH-SM2534	250/30	75/340mm	£159.98	£191.98
Makita LS1040	260/30	95/130mm	£199.98	£239.98

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CBG6RSC	HD	150mm	£47.99	£57.59
CBG6SB#	PRO	150mm	£49.98	£59.98
CBG6RWC	HD	150mm	£54.99	£65.99
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Clarke CON185*	1600W	60/40	£59.98	£71.98

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News from the bench

Comment, insight, views and news of woodworkers from around the globe

Makita launches hydraulic driver

The new 18V DTS Oil Pulse impact driver uses a form of hydraulic transmission that delivers power while reducing vibration and noise. With existing impact drivers in the Makita range, the impact action is metal-to-metal with the high-speed action damped by springs. In the Oil Pulse version hydraulic oil is compressed by a revolutionary rotary drive train and the hydraulic pressure promotes the impact action. The DTS141 gives two impacts per rotation of the ¼ hex driving shank.

While maximum tightening torque is limited to 40Nm – adequate for most assembly and installation tasks – the impact noise generated by this driver is significantly less than those in the current range at a maximum of 77dB(A) against the 96dB(A) of the traditional products. Similarly, the Oil Pulse system is designed to dramatically slash the vibration rating down to 7.0m/s² against an established rating of 12.5m/s² for the Makita DTD148 driver.

The brushless motor delivers up to 2,700 impact blows per minute and runs up to 3,200rpm in max power selection. This is suitable for M8 machine screws, M6 high tensile bolts and 125mm coarse-thread screws. This body-only model has the benefit of Extreme Protection Technology (XPT) protecting against weather and dust ingress for long life and rugged reliability. The compact DTS141 impact driver has a 136mm overall length, weighs just 1.5kg, has an LED job light and electric brake, and comes in a high-impact MacPac case.

For more info go to www.makitauk.com

Irwin in the Groove

Irwin Tools' Blue Groove 6X bits, claimed to be world's fastest wood-drilling bits, are now available in 4in and 16in lengths as well as the 6in size. Unlike spade bits that have spurs to scribe holes when cutting, Blue Groove 6X bits have a tapered three-flute design for faster chip ejection and less binding. The 16in has a flute hole for wire pulling.

For more info visit www.irwin.co.uk

Wealden Tools router cutters for windows

Wealden Tools has been working on a set of router cutters to assist in the production of timber windows using a router rather than a spindle moulder. This set, designed by Wealden and Fry Design, requires a router, a saw and only a few other tools to produce outward-opening flush timber windows in a UK style. Similar tooling is also available to construct inward-opening windows in the Continental style. Using Wealden's suggested timber section sizes for the frame and sash will ensure that the cutters will produce the correct mouldings and, in addition, the pdf calculator supplied will work out a detailed cutting list.

A video showing the basic sequence of making a UK window can be found on YouTube: https://www.youtube.com/watch?v=5nhU5H3ngwU and a digital leaflet at http://www.wealdentool.com/ptcat/window/

The cutters, intended for use by competent woodworkers only, are obtainable online from Wealden Tools at http://www.wealdentool.com/acatalog/Window_System_160.html

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Axminster trade clamps

Axminster Trade Clamps' range includes G clamps, F clamps, bar spreaders, parallel bar clamps, sash clamps and T bars. Most clamps are made from steel of one form or another or ductile iron. The bars of sash and F clamps tend to be made from cold drawn steel, which has greater tensile and yield strength than hot rolled steel bar. Other clamps will be made from forged steel or ductile iron depending on their usage. Ductile iron is a better choice where a casting is used. All are offered with a lifetime guarantee and prices range from £1.96 for a 25mm G clamp up to £54.96 for an HD parallel jaw clamp. Many of these clamps are offered at bulk discount prices. For more info visit axminster.co.uk.

Machine Mart catalogue

Machine Mart's 500-page spring/ summer catalogue is packed with more than 1,500 new products and price cuts. For your copy call 0844 880 1265, go online at www.machinemart.co.uk, or pick one up at your local Machine Mart Superstore.

Record Power woodturning kit

Record Power is launching a new range of woodturning chucks and jaws based on customer feedback and suggestions.

The SC3 Geared Scroll Chuck and SC4 Professional Geared Scroll Chuck are direct replacements for the G3 and Supernova2 models, with some improvements. On both the jaw slides are larger than others on the market, increasing their torque and load-bearing abilities. Manufactured using the powder metallurgy process, they are made from high tensile steel, impregnated with nickel-copper for strength and longevity.

The jaw slides are controlled using a precision-engineered geared scroll which moves in the conventional screw direction, clockwise to close the jaws and anti-clockwise to open them. Many other chucks work in the opposite, less intuitive, direction.

The SC3 is available in these thread sizes: ¾in x 16tpi, 1in x 8tpi and M33 x 3.5.

The SC4 is available as an insert version, with a full range of inserts to fit virtually any kind of lathe. Unlike the previous professional chuck, the SC4 is now available with an M33 x 3.5 insert. The chuck body has been designed specifically to hold this large thread size insert, offering flexibility to customers who may want to upgrade to or from an M33 lathe.

The SC3 package is being offered at the same price as the previous equivalent at £119.99 and the SC4 has an even lower initial price than its predecessor at an £149.99.

The 14 chuck jaws include some that are new designs exclusive to Record Power, and are compatible with the previous Nova series chucks.

CamVac acquired by Record Power

Record Power, which acquired CamVac last October, has announced that it is continuing to manufacture the extraction machines in the UK at its expanded Chesterfield, Derbyshire, engineering facilities.

All current CamVac machines and accessories will remain in production using the same tooling and manufacturing techniques, and backed by a 5-year guarantee on all products manufactured from 22 October 2014.

For more info call 01246 571 020 or visit your nearest CamVac stockist.

Versatility from Hilti

Hilti's DX 2 powder-actuated cordless fastening tool is designed to provide more than 1000 fixings per day whether fastening to concrete or steel, and will fasten wood to concrete and steel.

The tool is powered by powder cartridges which are classified as Clean-Tec, so contain no lead or other heavy metals and support Green Building Standards, including BREEAM. Numbered strips on the back of the cartridges also help DX 2 users to utilise the full cartridge.

For more info and to watch the video, visit www.hilti.co.uk/dx2

Squaring up to WorldSkills

Accurate measurements are the benchmark of successful woodworking, and to help the current crop of youngsters hoping to win through to represent the UK at WorldSkills get it right, Starrett has supplied a comprehensive kit for contestants and their mentors.

Head of furniture studies at Chichester College and WorldSkills training manager for cabinetmaking, Christian Notley, said: "Competitors from the UK will face entrants from over 60 countries and regions in North and South America, Europe, Asia, South Pacific and Africa. They will take on similar challenges that professionals in their chosen discipline would encounter. They will be measured and must meet international standards of quality if they are to finish in a medal position, or even win."

Today, WorldSkills represents more than 45 skills in 72 member countries and regions, all working together to help prepare the workforce and talent of today for the jobs of the future.

Christian Notley uses Starrett kit to measure competitors' work

Supporting the cabinetmaking, carpentry and joinery skill entrants, the measuring equipment supplied by Starrett is worth several thousand pounds. Using it will be young people competing for just one place in the cabinetmaking, carpentry and joinery disciplines in August's WorldSkills competition in Sao Paulo, Brazil.

Christian Notley says: "Skills competitions are held around the world to showcase and inspire world-class excellence in skills and introduce young people to a variety of skilled careers. These provide us with the opportunity to see how well the contestants work under the pressure of being constantly watched and timed, as well as their ability to follow the instructions issued."

As well as supporting the importance of professional education, the regional and national competitions held in the run-up to Sao Paulo give Christian Notley and his peers, Andrew Pengelly in joinery and Pat Phillips in carpentry, the chance to select the best young person to represent the UK.

"The marking for every competition is extremely tight, and the difference between first and second place can be just half a point. So we have to be able to trust the equipment we use to check all the work. Every piece of the measuring equipment supplied by Starrett is robust and reliable, the competitors use it to check their work as they progress through each challenge and we use it for the final assessment of every aspect of the task set. As the CAD drawing is dimensioned to two decimal places that is what we measure to wherever possible," Christian Notley states.

COURSE**DIARY**

At last! April's here and the workshop/ garage door can be left open to let the sun shine in while you take a break to decide on which course to sign up for.

April
8-9 Beginner routing (Sittingbourne)
21 Fine-tuning handtools (Sittingbourne)
23-24 Beginner turning (Sittingbourne)
Axminster Tool Centre
Unit 10 Weycroft Avenue
Axminster
Devon EX13 5PH
Tel: 0800 975 1905

13-17 Beginners' furniture making
20-24 Advanced furniture making
27-28 Routing intro/tool tray
Peter Sefton Furniture School
The Threshing Barn
Welland Road
Upton upon Severn
Worcestershire
WR8 0SN

26 Woodcarving intro
West Dean College
West Dean, nr Chichester
West Sussex PO18 0QZ
Tel: 01243 811301

20-24 English double bow
The Windsor Workshop
Churchfield Farm
West Chiltington
Pulborough
West Sussex RH20 2JW
Tel: 01798 815925

May
1-3 Make wooden hand plane
21 Beginner bowl turning
21-24 Starting out in woodturning
West Dean College
West Dean, nr Chichester
West Sussex PO18 0QZ
Tel: 01243 811301

5-6 Beginner woodturning (Axminster)
7-8 Woodcarving (Axminster)
13-14 Beginner turning (Sittingbourne)
19-20 Bowls & Platters (Sittingbourne)
22 Turning pepper mills (Sittingbourne)
Axminster Tool Centre
Unit 10 Weycroft Avenue
Axminster
Devon EX13 5PH
Tel: 0800 975 1905

11-15 American double bow
25-29 Child's armchair
The Windsor Workshop
Churchfield Farm
West Chiltington
Pulborough
West Sussex RH20 2JW
Tel: 01798 815925

Prokraft turning system

Prokraft, a new supplier in the woodturning and woodworking market, has developed a bottle stopper turning system. The stoppers offer an engineered surface at both ends of the item, enabling removal and re-mounting onto a lathe with little if any movement of the workpiece. This means a more sophisticated stopper to be turned as it can be removed from the lathe, embellished, carved or have pyrography added and then be returned to the lathe for final finishing without the need for re-cutting. This system requires a mandrel, a simple steel threaded bar at under £2. However other Prokraft items normally only require drilling. For more information visit www.prokraft.co.uk

Hannah's poppies

Remember Hannah Dowding whose green oak experiment we featured in last month's issue? Well, here she is being innovative again constructing holders for the ceramic poppies that so captured the public consciousness when they were displayed at the Tower of London. The holders are in oak for £43.75 and walnut for £49.75. Certificate display stands are also available. £3.75 from each sale will go to support the work of the Royal British Legion. For more info visit www.hannahdowdingfurniture.co.uk

Veneering with stone

A family-owned joinery manufacturer has launched a revolutionary new product and purchased factory premises with the support of funding from Clydesdale Bank.

The MWC Group, which has its head office in Cirencester, has become the sole UK and European distributor of Earth Anatomy stone products, natural stone veneers which can be used for doors, work surfaces, panelling and retail displays. The business has purchased its previously rented factory, giving it more flexibility to concentrate on further developing Earth Anatomy UK. Earth Anatomy panels can be as thin as 1.3mm, making natural stone lightweight and flexible. The company hopes the development of Earth Anatomy will lead to investment in recruitment over the next year.

MWC director Jonathan Bowers (right) with Clydesdale Bank relationship manager John Cary

OFFCUTS

Returning to Penshurst Place & Gardens, near Tonbridge, the Weald of Kent Craft & Design Show takes place from 2-4 May, featuring the work of some of Britain's leading craftspeople to the backdrop of live music, and with workshops to see craft in action. Furniture makers will be among the 200 displays.

■■■

Sculptor Laura Ellen Bacon and furniture designer/maker Sebastian Cox are collaborating to create an elaborate – and so far secret – installation out of American hardwood, to be shown at Clerkenwell Design Week from 19 May, and called The Invisible Store of Happiness.

■■■

A garden at Chelsea Flower Show, 19-23 May, called Beyond Our Borders, is to show how British trees are being used to provide an early warning system for new plant pests and diseases that could harm our natural environment. It is designed by Sarah Eberle and commissioned by the Animal and Plant Health Agency.

Christine's mirror

Christine Meyer-Eaglestone sold Dazzle III mirror when she exhibited it at The Society of Designer Craftsmen's annual show at the Mall Galleries in London. She also won The Gane Trust Award 2015 for excellence in design and craftsmanship.

Good Woodworking Free Reader Ads

Machinery

Hefner 1Multicut fretsaw in excellent condition, extras include blade clamps, stand, hold down, blade alignment jig, magnifier light, total value new over £600, £250 the lot.
Davey, North Oxon ✆ 07707 242948

Nutool 6 planer, Coronet thicknesser (ATTMT), ½in rebate, stop chamfer, spare blades, stand, 42in long, £230
Mr R Boler, Derbyshire ✆ 01246 200293

Multico Super Shop 5 in 1 woodworking centre, table saw, vertical drill press, horizontal borer, woodturning lathe, 12in dia sander disc, includes mortising attachment with ½in chisel, retractable castors, TCT saw blade, £350
Mr G Russell, Cambridgeshire ✆ 01945 780089

Sedgewick 571 hollow chisel mortiser, lightly used, £650; Woodrat WR900, first-class condition, cutters, dust control, full instructions, £250
Oxford ✆ 01865 858241

Turning

Myford woodturning lathe, blanks, numerous tools, videos, books, magazines, boxed tool sets, phone for details, can deliver within 100 miles for cost of fuel, stroke forces sale, £495
John Cook, North Yorkshire ✆ 01748 833988

Record No.3 36in centres + bench, £165; Record chuck system, Axminster various chucks, £130; turning tools, many, £90; wood blocks, large amount, £75; all as new, buyer collects
Mr J Thompson, Derbyshire ✆ 01246 863593

Wanted

Carving chisels and sharpening stones wanted by beginner
A. Barron, London ✆ 07711 059113, abarron@btconnect.com

Scheppach TS2500 ci table saw, 2000mm sliding carriage rail only please, will travel to collect
Peter Clements, Oxford ✆ 07803 025985

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Irwin's right-angle attachment is designed for tight spots

Irwin impact right-angle drill/drive tool

With plenty of impact-rated driver bits and drills on the market, Irwin has kept up with the pack with a whole raft of bits in all the common styles and sizes to cover most screws and fixings, as well as bit holders, including this impressive right-angle attachment.

It has a standard 6.3mm hex shank for direct fitment to impact chuck, and it runs very slickly with all-metal 1:1 gearing so any fine trigger control is replicated through to the driver bit for precision.

With a standard 25mm-long driver bit fitted the overall head height is a mere 50mm so it will gain access to some very tight spots as required, but with the added advantage of the impact action transferring through so the fixing can be driven or undone without the additional torque stress of a normal drill driver.

That doesn't mean it can't be used on a normal drill, just that the construction of the attachment is designed to cope with the impacting action as it works so you gain the efficiency when it's used with an impact driver.

▲ It's a comfortable accessory to grip; the clipped end is ideal for applying thumb pressure

▲ In tight spots the adaptor comes into its own

Size wise it has a good chunky feel in the hand; not so slim that it slips in your grasp, and with a sculpted rubber overmould on the metal casing and a clipped end behind the chuck to rest the thumb, I found you can get good purchase on it to assist any drilling or driving jobs.

Conclusion

This should prove to be a handy addition to your kit for the odd occasion where you need to get to a tricky area so is worth the money for that alone. The only downside for me is the magnetic bit holder; it retains the driver bit pretty securely but that magnetism isn't transferred through the bit to help keep any fixings in place, and with tighter spots that's when you need it most.

Prices

Our product prices reflect typical values as we go to press. We cannot guarantee these prices, though, and thoroughly recommend that you shop around.

How we rate...

★	Don't get your hopes up or your wallet out!
★★	Well, it works but really needs improvement
★★★	Performs well, but you will find better
★★★★	Great performance and value for money
★★★★★	So good, even Andy would get his wallet out!

The Good Woodworking Verdict

+ All-metal gears; rubberised sculpted grip
– Poor magnetic transfer to screws

Rating ★★★★½
Typical price: £30
Overall depth (chuck to back) 35mm
Shank: 6.3mm hex
Chuck fitting: 6.3mm hex
Web: www.irwin.eu

Timber framers and boat builders could well find a use for this mighty cordless

In the frame

Immediately I saw this I wished it had been available during my boat-building days.

While most manufacturers have a right-angle drill of some description, whether mains or battery they all tend to come up short when you need to do bigger diameters unless you go for the really hefty heavy-build models, so the ability of this big tool to drill up to 51mm diameters with a screw-feed auger and 102mm with a hole saw is its prime selling point.

The Hole Hawg is a lump of a tool in its own right, but of lower weight than a comparative mains machine, as well as being an addition to the already impressive Fuel range for benefits including increased battery life per charge and minimal maintenance during its lifespan.

▲ A single trigger-operated LED helps in darker areas

▲ The chuck key stores very securely in the metal retaining clip

For the woodworker, the power it generates immediately drops it into the heavy-duty applications of timber framing and boat building where bigger fastenings are the norm, and often in confined spaces where a normal drill won't be able to go.

That's not to say it won't gain use in other more common areas, drilling joists and studding for pulling cables; running standard plumbing pipes, including wastepipes, are all within its grasp so it will find favour among a wider audience, especially a jobbing builder who does the majority of any build from ground to roof.

Keyed chuck

Having had this drill on the test bench for a couple of weeks and running a variety of different holes in different test stock, I have to say the only downside for me, especially in this day and age, is the keyed chuck, but it does allow good purchase on any bit you have to secure within it.

Milwaukee Hole Hawg

▲ There's an easily operated push-through forward/reverse switch

▲ The chuck is excellent quality and holds very firmly

◀ It makes short work of longer holes as well as operating in confined spots

▶ The lower grip and top handle help to keep the drill in full control

▲ Making these 22mm-diameter holes in 300mm-thick pine was a cinch

▲ Switching to a holesaw allows you to cut bigger diameters through steel as well as wood

But the ease and simplicity of a keyless one would be my preference, especially as it sits beyond the actual drill body; a keyed chuck is often recessed well into the drill body to gain extra slimness over a keyless one, so no real benefit to the keyed version used here.

However, speaking with one of the Milwaukee team while at a Milwaukee tool launch, I found out that it's down to the design parameters of the right-angle tool that prevents a spindle lock for a single-sleeve chuck.

A split-sleeve, two-handed keyless chuck would be an option but the torque generated and the closeness to the body made it difficult to gain enough purchase to secure the bits under higher loads. The chuck key does store very securely on board though, so I guess that's a bonus to help prevent it being mislaid!

On test

But of course, it's all about performance with any tool, and this one does it in spades.

In homage to my boat-building days, while at the event I ran a set of holes with a 22mm auger through 300mm of pine with consummate ease, the tool barely breaking sweat as it powered through.

Equally impressive was fitting the tool with a 70mm holesaw and drilling through a sandwich of OSB sheathing and sheet steel: again a flawless performance.

The top-grip handle and long body keep the strain on the wrist to a minimum, and that's important on a drill that generates powerful torque as it works, although the specification in the manual states this is only 25Nm, which seems low for such big diameters; but right or wrong, it certainly lives up to expectations.

You can remove the top grip if you are in a really tight spot, but for safety it's always best to use it if you can to ensure maximum control.

The variable-speed trigger makes life easier as well to control the hole at the start and as you progress, and on bigger holes where the grab can take you by surprise, being able to be in more control by starting slowly is a big help.

Conclusion

While not for all, this drill puts in an impressive performance, equal to a mains machine, and with no restriction of cord it easily gains the upper hand.

The Woodworking Verdict

Good

+ Ideal for timber frame, boat work and other specialist applications

– Limited use for many regular woodworkers; big machine for general use; chuck key bit retention

Rating ★★★★☆

Typical price: £260 without batteries
Speeds: 0-1200rpm
Chuck capacity: ½in keyed
Max hole diameter: 32mm auger, 51mm self-feed bit, 102mm holesaw
Weight: 4.2kg
Web: www. milwaukeetool.eu

Snap to it!

These Trend kits, while not designed for impact work, offer a great range of applications

If you already own a battery driver, the SB3 kit is the more comprehensive in the fixings that can be used, with 48 25mm-long bits covering Philips, Pozi, slotted, hex, Torx and Torx security plus seven 75mm-long bits covering the three common Pozi and Philips sizes along with a single slotted bit.

Each bit has a coloured identifier ring, and all are of good quality, as is the magnetic bit holder. This has a pullback sleeve that locks each bit in place, but while the magnetism within is good on the 25mm bits to help hold a fixing, I found it has no hold when the 75mm bits are in use. Nonetheless, there's a decent set of good-quality bits within this set in a compact little case if that is all you need.

However, the SB4 is the more interesting of the two and gives more scope, especially if you want the closer control that hand driving offers. It's a 41-piece set and has a small ¼in drive ratchet handle for the five sockets as well as a natty little ratchet handle for the screwdriving tasks which can be used in its own right for additional purchase on stubborn fixings or for an extra nip up as required.

There's an adaptor included so the sockets can be used, but the advice is to go no bigger than the 10mm socket.

With a decent set of commonly used bits in various sizes, again with coloured collars for easy identification, it's the inclusion of a further set of micro-sized bits that could prove useful for some repair work, on small electrical items especially.

A neat dual-function bit holder is included for these as they have a smaller 4mm hex shank so the bit holder has a retracting sleeve that reveals a 4mm holder in one position and a standard 6.3mm holder in the other.

Conclusion

The overall quality is again very good indeed, and used within its capabilities this is a kit that is especially useful for small assembly work where finer control is needed while still attaining decent torque on the fixings.

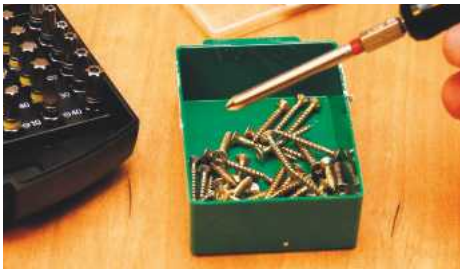
The Good Woodworking Verdict

+ Excellent range each set; SB4 ideal for controlled smaller work
– Be careful not to overload the SB4 driver on bigger fixings or bolts; magnetic holder has no power on longer bits

Rating ★★★★½

Typical price: SB3 **£32.28**; SB4 **£35.88**
SB3 set: 48 bits x 25mm; 7 bits x 75mm
SB4 set: 12 x 25mm (6.3mm hex fitting); 18 x mini (4mm hex fitting); 5 x splined sockets – 6, 7, 8, 01 & 13mm
Web: www.trend-uk.com

▲ The SB3 bit holder magnet works well enough with a short bit fitted...



▲ ...but with the longer bits there's no magnetism at all through the bit

▲ With the black sleeve forwards the standard 6.3mm hex bits are held

▲ Slide it back and it holds the micro 4mm hex bits

▲ The SB4 ratchet handle can hold the bits directly for tight areas

▲ Alternatively it will take the magnetic bit holder to extend it

▲ You can also fit the sockets using the adaptor

▲ For general nut and bolt securing the ratchet handle is good

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Masterly makeover

Tormek has given its T3 wetstone grinder an upgrade

Tormek sits with the likes of Lamello and Festool as innovators and providers of tools at the top end of the market, and although Tormek only has the wetstone grinder as its mainstay, it's still a notable brand.

It has evolved over the years and currently comes in a couple of guises, the T3 and the flagship T7, but now the T3 has had a makeover to become the T4. It still has the smaller and slightly narrower wheel to the T7, coming in at 200mm diameter and 40mm wide, as well as retaining the intermittent motor: 30 minutes of use per hour. But this latter specification is not as limiting as it seems as you have to be going some to exceed this over a sharpening session; after all, wetstone grinders aren't designed to do huge regrinds such as restoring extensively damaged and chipped edges, but rather to touch up established edges as well as honing to a razor's edge when put to the leather strop wheel.

This combination of fine grind and leather polishing is great for woodturners and carvers especially when touching up or lightly re-dressing a dull edge, and with a consistency that can't be replicated by hand-held means.

No square-edge guide

To do so needs an extensive range of jigs, and of course Tormek has them to suit pretty much every common edge tool on the market, so you can add to the basic setup as you need to. However, the standard square-edge guide found in the T3 for chisels and plane irons, another area where the Tormek gains plenty of fans, has been dispensed with.

I think this is a bit of an oversight; even the most avid carver or woodturner will likely have a plane or chisel tucked away and the general woodworker will look to the start point of square-edge tools before moving to the more complex jigs.

This means you have to factor in the additional expense of a jig before you can get up and running, although Tormek believes in safety first as they still include a few sticking plasters just in case you cut yourself after a tool has been worked!

Despite the jig omission, Tormek hasn't cut corners in the build of the T4; it has the same

▲ The EzyLock nut makes it easy to strip down the Tormek for stone swaps or maintenance

▲ The roughened pin drives both wheels and rests against a rubber wheel for grip to drive

▲ The water trough clips easily onto the body

stainless steel spindle shaft for longevity, and also has the EzyLock nut to remove the stone if you want to swap or replace it.

This is a plastic nut whereas the T7's is metal as I recall, but it works well and it's not a thing you would do regularly so longevity and durability shouldn't be an issue.

There's also a solid zinc head which I guess is the top metal plate on the casing. Tormek claims it offers 300% more precision than the T3 grinder so I guess it also holds the motor assembly within the ABS plastic lower casing.

In use

It certainly is a very smooth ride; I used the T4 to grind a few chisels and plane irons and found the stability to be silky smooth.

The stone is equally impressive. It cuts very quickly but still leaves a very clean and fine scratch pattern on the tool edges, making it very quick to dress and lick tool edges back into shape.

The power switches are top mounted so you can easily get to them whichever side you are working from; a good upgrade to the front-mounted switches that are well placed for some operations but at the back of the machine for others.

As with the T7, the anomaly between the diameters of the grind wheel and the leather honing wheel is present, the 200mm grindstone being paired with a 145mm honing wheel. It does mean that any grinds that are then put to the honing wheel have to have the main bevel setting jig altered to allow for it, and with the diameter of the grind different from the hone, the actual bearing surface is slightly awry; It can't be a huge increase in costs to match the two wheel diameters and makes life a little easier when using both the functions to their full advantage surely?

Conclusion

But that niggle aside, this latest incarnation is a very efficient and stable setup that does a sterling job once you have a jig or jigs to suit your needs. However, it's not a cheap machine on its own, and all the more costly when you factor in a jig to get you started which will be a stumbling block for many despite the machine's abilities.

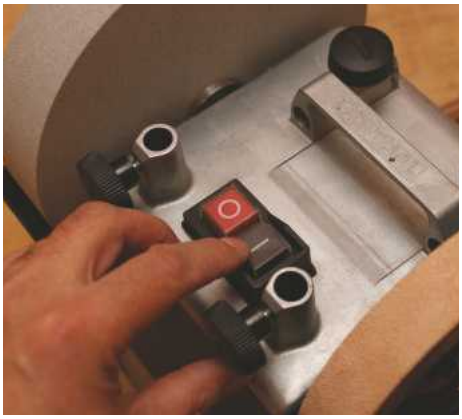
The Good Woodworking Verdict

+ Stainless steel drive shaft; 7-year warranty; easy access switch

– No jig supplied

Rating ★★★★½

Typical price: £299.95
Motor: 20W
Speed: 120rpm
Stone diameter: 200mm
Stone width: 40mm
Leather wheel diameter: 145mm
Leather wheel width: 26mm
Web: www.axminster.co.uk



▲ Rubber-shrouded power switches are easily accessed. Note the solid zinc top and carry handle

▲ The tool post has the standard Tormek fine-height adjustment for tweaking the angle

▲ It fits in various positions to suit the grinding or polishing task in hand

▲ Setting any bevel is consistent and easy with the AngleMaster

▲ The grindwheel works very quickly and slickly

▲ The resulting grind is clean and with a very fine scratch pattern

▲ You can check the wear of the stone against this simple diameter gauge

▲ No tool jig, but you get the grading stone, AngleMaster, honing paste and sticking plasters

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Innovation on target

Milwaukee works its woodworking journalists as hard as they work their tools... Andy reports on a products conference in Ireland

My constant hunt for new products to test sometimes takes me on the road and over the water, and this time round it was a trip to the outskirts of Dublin to attend the Milwaukee dealer conference where the newest innovations were being aired.

The event kicked off with a long video presentation, then after a bite to eat it was off to bed early for the main event next day. Having to be up just after 6am for breakfast for a 7.30am start was a bit of a wrench, especially as the schedule went through to 5.30pm. The day was split into various work stations to showcase the tools in set bands according to their purpose.

There's a crossover of some of the tools into various trades so while the cordless in both 12 and 18V platforms, plus a new range of hand tools and storage, accessories such as blades, drills and bit holding solutions, were all high on my agenda, plumbing and automotive still had some validity, even if only to see the diversity of the tools Makita makes and the power and application they can work to.

It's a long day traipsing around trying to take it all in as well as snapping plenty of photos, so it was broken up with some fun stuff. Unfortunately, our group's rotation saw me firing a bow and arrow at 7.30 and having a crash course on riding a Segway by 7.45 – both enjoyable, but it meant the rest of the day was full-on tools all the way.

▲ A different kind of shooting than Andy's used to, especially first thing in the morning!

Battery battles

I think it's safe to say that there's still 'a battle a ragin'' when it comes to the harnessing of battery power, and Milwaukee is striking a big claim for the best of the bunch with its new 5Ah version launched here.

A redesign of the casing means water can't get into the cells or circuitry; instead it drains through weep holes in the casing. Shock-absorbing cradling between the cells keeps the structure as robust as possible to cope with vibration and shock under load in hard-working areas. Also, new large metal plates act as wide contact points to make the connections between each cell extra secure against vibration and for shock protection as well as dissipating heat to help disperse temperature build up away from the cells.

A rival machine was set to work alongside this new battery with a couple of thermal imagers gauging the amount of heat getting away from the batteries as they worked and, sure enough, the Milwaukee increased its outer core temperature quickly to indicate that heat was being drawn away from the cells quicker than its rival.

But power is what most of us want and particularly impressive were the drilling head-to-heads, and all of the main players' machines were available in a like-for-like competition in the given platform. Such is the power of the 12V drill in particular that it was pitched against a Hilti 14.4V model of similar spec other than the voltage. The test here was two-fold, one to show the ability to drill to the same standard of the higher voltage model and two to show that under load the Milwaukee would actually continue without the electronic overload protection kicking in prematurely.

The power of the Milwaukee is incredible for such a diminutive machine, but the Hilti didn't fair too badly, and indeed the demo guy made it perfectly clear that the Hilti was a great drill in its own right, and it kept pace with the

▲ Drilling was a big feature of the event with attendees invited to try them all out

▲ The battery tools were put through some rigorous workouts to show their ability

Milwaukee launches

▲ A podium of rival machines to show how many holes they can do on a single charge

▲ There's also a range of laser measuring devices including this dinky multi-function unit

▲ It's not all power tools: this is a Bluetooth battery-operated speaker!

▲ The new 5Ah batteries are the same size as the 4Ah and fully compatible with all 18V tools

Milwaukee in a fair few holes, but it was markedly different after making a few one after the other where the drill was beginning to get hot and the circuitry was doing its job of protecting it. The Milwaukee continued as it was so powerful and not generating enough heat to cause it to cut out as readily as the Hilti.

Likewise, hit a harder area on the test timber and the Hilti occasionally stalled, again down to the circuitry, while the Milwaukee took it in its stride due to the impressive torque levels it generates before it needs to protect itself.

18V Fuel

But the one that really piqued my interest was the new 18V Fuel drill driver. This brushless model boasts a 68Nm torque in its top speed of 1850rpm, and that alone will probably make it top value for anyone who always needs to get jobs done quickly. With such power the drill will be able to sink bigger-diameter holes at its fastest speed where the normal procedure is to drop down to a lower speed to gain the amount of torque required to drill, and I'm hoping to put that to the test as soon as I can get my hands on one!

Drilling was certainly a theme and the Hole Hawg was being showcased as well although I've had one on my test bench for a couple of weeks already, see p16.

So with the rest of the stuff on show safely catalogued on the old Box Brownie, it was time for the closing event: a trip to the dog track. Not knowing the first thing about them, I chose the pot luck option a few times and failed miserably... so having lost on every race I bet on, it was back to the hotel, bed by 11.30pm and up at 4.30am for a coach to the airport and the flight home.

All in all, a tiring but worthwhile couple of days, but despite being in the heart of Ireland, I never got a chance to see a real rock let alone a shamrock!

▲ I guess we'd all like a van as well kitted out as this, and it's only a small part of the range!

Why stand...

...if you can sit? asks **Stephen Simmons** who likes to take it easy when working on small objects

▲ Pic 1 **Ideal sitting work: none of these boxes is more than 400mm wide yet all offer a fascinating combination of wood and other materials from ivory and imitations...**

I'd like to expand on something that I mentioned last month... sitting down to work. Most conventional work practices were developed by and for the physically able, but that's no reason to regard them as sacred. Provided that health and safety are not compromised you can modify things to suit your own situation and comfort, and sitting down is one of the most obvious.

Not all restoration projects involve large pieces of furniture and many smaller items lend themselves perfectly to this way of working. Don't fall into the trap of thinking that restoring small items is somehow inferior to 'proper' restoration. They provide the same basic range of challenges but as they're on a smaller scale they place far greater demands on your skills with the result that errors are magnified rather than disguised.

Embellished boxes

You may find that there's some other aspect that makes them good sitting-to-work projects. A good proportion of small items are boxes in some form or other and many of them are highly decorated, so much so that the wood seems of secondary importance. Ivory or its imitations (**Pic.1**), mother-of-pearl (**Pic.2**), bone, brass and pewter (**Pic.3**) all crop up, alone and in combination.

Now, for some inexplicable reason I've always found it more comfortable to work with non-wood material sitting down. It just seems more natural and once you've tried it you may find it so as well. Either way, the wider range of materials in itself can be an attraction. Comfort is of the essence, plus attention to the work surface, your chair and access to tools.

▲ Pic 2 **...to mother-of-pearl...**

▲ Pic 3 **...and more mother of pearl with pewter**

1. Work surface

Benches are not designed for sitting... but tables are. There are always old tables to be had; you may need to brace the legs for extra rigidity and adapt the height if necessary, but a table should serve you well, particularly if you can fit a vice onto it.

If you haven't got room for a table an existing bench can be adapted for sitting. Of course you will have nowhere to tuck your knees and you'll find yourself sitting side-on which is uncomfortable and not to be recommended, but before making unproven and irreversible structural alterations to what may have been your biggest investment, try altering the height instead.

2. Your seat

If you jack it up on some breeze blocks you may well find that you can then get your knees under the front rail when sitting on an old bar stool. Go skip rummaging and you'll probably find something suitable. It's surprising what you can do with a very modest outlay and a bit of imagination.

When it comes to seating for a table be more discriminating. Don't use any old chair that comes along but select carefully as you would any piece of equipment. You're going to be spending a lot of time in it. Consider all the options. Arms or armless? Mobile or static? Try

TIP If conventional work practices are not sacred then neither are work patterns. Several short sessions can be far more productive and enjoyable than slogging away for hours just for the sake of it. After all, woodworking is supposed to be a pleasurable hobby.

the selection of stable, adjustable, mobile office chairs in IKEA – they're not expensive and come with and without arms.

I found that arms got in the way and that my needs were best suited by a battered Windsor chair. You'll need to get up and stretch more often than when working conventionally. And of course, if it's not essential you don't have to work sitting down all the time.

3. Access to tools

Access to tools might be the least important of the three but it does need some attention, if only to save a lot of bobbing up and down. If you are working at a table, think about making a mobile rack to keep your most frequently used tools nicely to hand at your side. It doesn't have to be fancy and an old tea trolley has vast potential.

Get to work

Now, to work... By small I'm not thinking of miniatures. There's a wealth of small but full-scale wooden items worth restoring and whether they fall into the category of furniture is irrelevant.

They range from 18th-century mahogany tea caddies and book-racks to the oak barley twist candle sticks popular in the 1920s. There are all sorts of boxes with varying degrees of complexity, from the single-compartment jewellery case up to small cabinets with drawers to house coin collections, but perhaps the most common single category is the knee-desk – writing slope – of the 19th century, the laptop of its day.

Close analysis

For some reason, small items in need of attention look worse than they are, far more so than larger furniture. A bit of close analysis pays dividends. They have generally been handled more or have sat on a smoky mantelpiece in former times and so benefit hugely from a good initial clean. That is often sufficient, even for some pieces that appear to be terminal cases at first glance.

Other aspects can be more challenging. Boxes often mean hinges, catches and locks and if you're not used to working with them, their repair, re-setting and replacement is not as easy as you might think. Accuracy is of the essence. Using the right stopped hinges makes all the difference to balance and stability and proper box locks are much more delicate than the small cupboard variety.

It's also worth paying careful attention to the specific brassware (**Pic.4**) of other items. There is a range of feet for caddies – I'm particularly fond of the lion's paw variety (**Pic.5**).

Boxes and desks

Reinstating the divisions in boxes is relatively straightforward, even if they are completely missing, because the layout is obvious from old glue lines or the V-shaped grooves inside the carcase, but replacing the missing original lead

▲ Pic 4 **Specialist brass work comes in many forms, featuring anything from galleries and rococo handles...**

▲ Pic 5 **...to various bits of the lion's anatomy**

▲ Pic 6 **It may not have got a secret compartment but it's easy to get hooked on even the most simple knee-desk**

lining in tea caddies is another matter. If it is beyond you and you're not going to use it for tea, you can always settle for green baize; use animal glue and it's reversible later.

And then there's the whole new world of knee-desks (**Pic.6**). As well as basic woodwork and veneer repair you've got the leather- or fabric-covered writing slopes with their own fabric hinges, ribbon lifting tabs, secret – or concealed – compartments with spring-release mechanisms, balanced pen trays, properly dovetailed drawers and specific brassware including protective external corner plates. All are do-able and hold their own fascination; the biggest challenge and frustration you'll face is replacing missing square ink bottles.

Caning technique

With the practice of chair seat caning fast becoming a lost art **Jeff Gorman** passes on some trade secrets

◀ Pic.1 **Jeff realised a long-dormant ambition to cane a seat after this old chair wound up accidentally damaged**

It must have been at least 70 years ago when, as I tried to watch an itinerant repairer re-seating a chair, I was rudely told to 'hop it'. Now in those days 'trade secrets' were, perhaps with good reason, jealously guarded, but I was left with a lingering curiosity that was left unsatisfied until a recent visitor unwittingly knelt on and broke the cane seat of an old chair (**Pic.1 inset**). DIY magazines and books have since transformed this 'trade secret' into a feature of social history; in this instance the pages of *The Caner's Handbook* 'betrayed' the particular secret I was after. I found that the process was full of peculiar little rules that only make sense when fully immersed in the job, so for folk thinking of rescuing an old chair, I reckon that my best course is to reveal just a few salient details.

I've illustrated five steps of the 'seven-step' process (**Pic.2**) in which, by twice using each hole in the front and back rails, the first three 'settings' become woven without any deliberate under-and-over threading.

However, the fun starts at step four when the damp cane has to pass through both wide and narrow spaces. At first, I followed the book's instruction to 'Place one hand underneath the seat and one hand on top', with the hand below returning the cane to the topside 'through the adjacent hole', using this method to slowly and dutifully cover the entire seat (**Pic.3**).

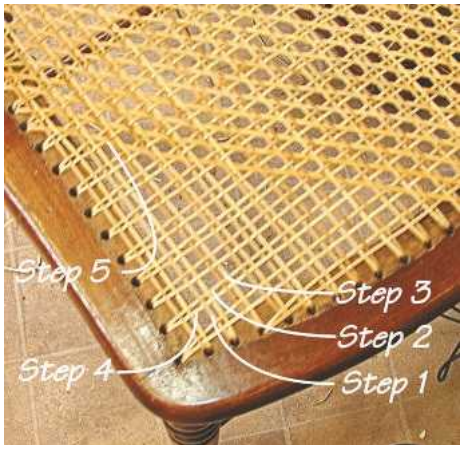
TIP

Keep your chin out of the way as you pull out the bodkin. Don't hold the awl in your hand while actually weaving, and never hold it pointing upwards.

Tools for the job

Of course, as soon as I'd finished this stage I discovered an old Dryad leaflet and belatedly learned that by using a 'shell bodkin' I could have woven four strands at a time (**Pics.4 & 5**), and with less strain on my back and neck as I crouched over the seat.

The bodkin also proved invaluable as I



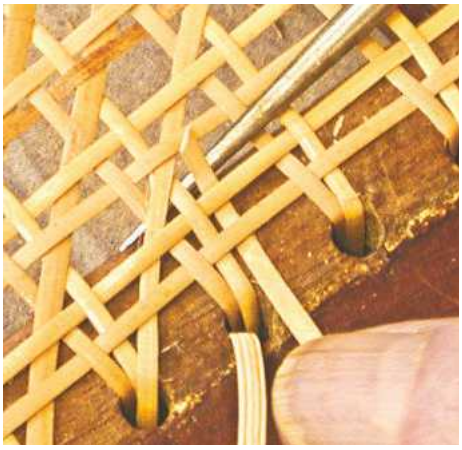
▲ Pic.2 **Step six weaves the other diagonal crossing, while step seven adds a border**

▲ Pic.3 **Jeff began working with one hand above and the other below the seat...**

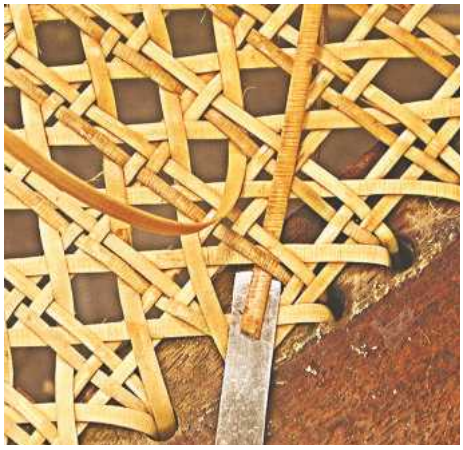
▲ Pic.4 **...but after learning about a 'shell bodkin', threading became considerably easier**

▲ Pic.5 **His bodkin could happily be pushed through the seat holes to clear a passage**

▲ Pic.6 **Here the awl gently creates a space for the cane...**



▲ Pic.7 **...and now it deflects and guides the cane upwards**



▲ Pic.8 **In this tight spot, a wax modeller's spatula guided the cane's end, easing the job a great deal**

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Fred Aldous: www.fredaldous.co.uk
DVDs etc: www.formerglory.co.uk

reached step five, which tends to be when the seat holes can become crowded – and they get worse at step six when the other diagonal crossing is woven. Fortunately the well-polished bodkin was able to pass through crowded spaces without damage to the cane. Although the cane usually passed smoothly along the bodkin's channel, at times I was required to obliquely snip the end, forming a sharp point that could be nipped into place between the channel and the wood. I then used my left thumb to keep the cane in place, pulling it through as I waggled out the tool (**Pic.5**).

Tight spots

As the weaving progressed the cane grew tighter and tighter until it became nigh-on impossible to pass the strands between the settings and the face of the frame. I felt sure that trying to pass the bodkin under tight strands would only serve to break them, so I used the slender and sharply pointed 'marking awl' to gently prise a glimmer of space for the strand (**Pic.6**). Following its passage through the adjacent hole, using the bodkin again, I realigned the awl to change it into a deflector that thwarted the cane's determination to travel under the settings (**Pic.7**). However, when this action became especially tricky I began to rely upon a set of smoothly polished wax modeller's tools, in particular a useful spatula whose curved tip neatly deflected the tip of a strand (**Pic.8**).

Lessons learned

The material can come in hanks containing lengths of anything up to 6m (20ft). As I'm sure I don't need to tell you, any stringy stuff just loves to tangle, but of course tangles are made of loops, and unthreading them is extremely tedious and sometimes completely futile. To extract a length from a hank, I was forced to vigorously shake the bundle, gradually winding a single cord around my hand to form a small coil, all the while remembering to keep the cane's glossy outer face on the outside. A wooden clothes peg held it all together as I soaked the lot in warm water for about 15 minutes.

The hank is folded part way along its length and is secured by a band that forms a loop. I found I had to select one strand from the loop then vigorously shake the bundle as I gradually drew it out ready for folding round a hand to form a small coil as I remembered to keep the cane's glossy outer face on the outside. A wooden clothes peg held it together while for about 15 minutes it soaked in warm water.

Given half a chance the coil will immediately begin to tangle again, so I learned to straighten the cane, making it pass over a fairly sharp bend as I drew it between the thumb and index finger of my right hand. Continuing to make sure that the upper surface of the weave faced outwards ended up taking a great deal of time.

Near the end of a pass the cane forms a loop that seems determined to twist as it is finally tightened, but an upward pull from a finger inside the loop really helps to keep everything on the straight and narrow. Since it's very difficult to straighten a twist in-situ, winkling out the strand and starting again is sadly the only sensible answer. Now, at intervals in its length this natural material has irregular nodes that make it essential to thread in the right direction for a smooth passage through the weave. Undoing a length involves pulling in the reverse direction and causing a node to snag against and break a setting. Until the ends are 'tied off' it is possible – albeit tiresome – to replace a broken strand.

TIP

As the work progresses, remember to turn the chair to the most comfortable position for threading and pulling the cane. Since the weaving passes rightwards and then leftwards, it'll help if you're a little bit ambidextrous.

Pushed to breaking point

The cane and the entire weave need to be kept sponged so that adjacent strands can flex under the stresses of the weaving. Particularly during step six, when the weave goes across the opposite diagonal (**Pic.2 again**), the weave became tighter and tighter. While I would have liked to have been able to pull a length right across several settings, I came something of a cropper when the strand ended up breaking in my attempts to do so. The relative who started all this then consoled me with the thought that she'd at least given me something to write about! There's a great deal more that could be written, though I hope if you're thinking of having a go, these details offer some idea of what you could be taking on.

Before I return to making my oak mirror frame, I need to say that this job engendered a great admiration and respect for those who do this for a living!

Reference

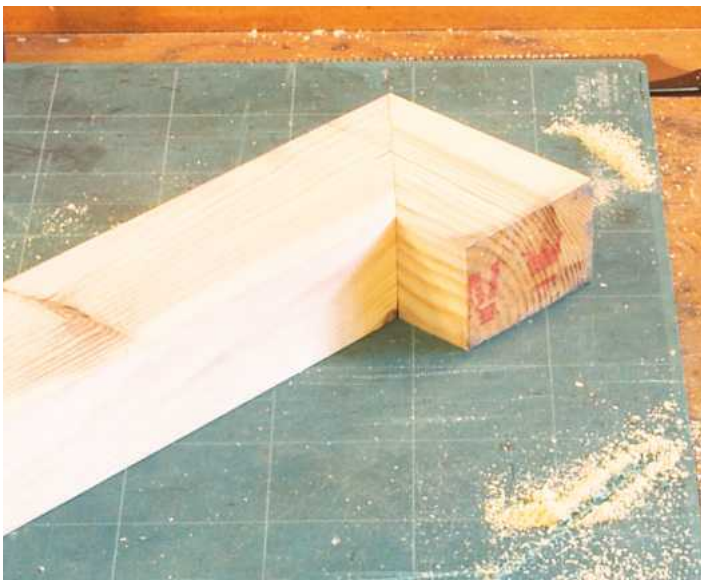
Miller & Widness:
The Caner's Handbook (ISBN 0004117727)

Mitres & grooves

This month **Michael Huntley** shows you how to cut right-angled corners and grooves

▲ Pic.1 A combination square being used to lay out a 45° mitre

▲ Pic.2 **Cramp and saw to the line, making sure your kerf is always in the waste**



▲ Pic.3 **A couple of passes with the plane and the butt mitres are finished, but need dowels or biscuits**

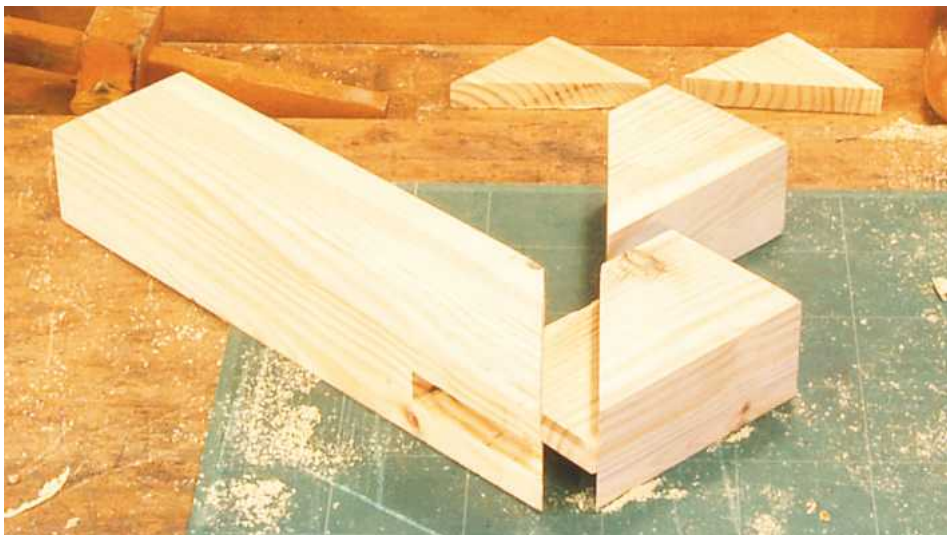
The next stage in the development of skills is to be able to cut at an angle and make a recess, in other words mitres and grooves. Mitres are used to make neat right-angled corners, and grooves allow you to fit panels to a carcase.

The simplest mitre to make is a 45° one. You can use the combination square to set this out (**Pic.1**), then drop a perpendicular down the two sides and cut to the line (**Pic.2**). As in previous cutting exercises, watch the two kerfs developing as you cut, one on the horizontal and one on the vertical. If you just cut two plain mitres (**Pic.3**) you have a problem because the only joint available is a butt joint, and butt joints are not very strong, so you need to find a way of joining your two mitres together. The least expensive is a bridled mitre.

In this joint the mitre is only cut a ⅓rd of the way through and a tenon left in the middle of one piece, the lower ⅓rd being mitred to match the upper ⅓rd. The mating piece has a mitre cut in the usual way but with a slot or bridle left for the tenon to fit into (**Pics.4**-**6**).

▲ Pic.4 For the bridled mitre **remember to mark the saw cuts from the same face**

▲ Pic.5 **Chopping the slot for the tenon**



▲ Pic.6 **Bridled mitre disassembled in front, plain mitre behind**

You could also use a loose tongue, or biscuits or dowels. There are many ways of joining and strengthening mitres depending on the purpose for which the item has been made and your budget. Some helpful drawings are in *Hayward's Woodworking Joints*.

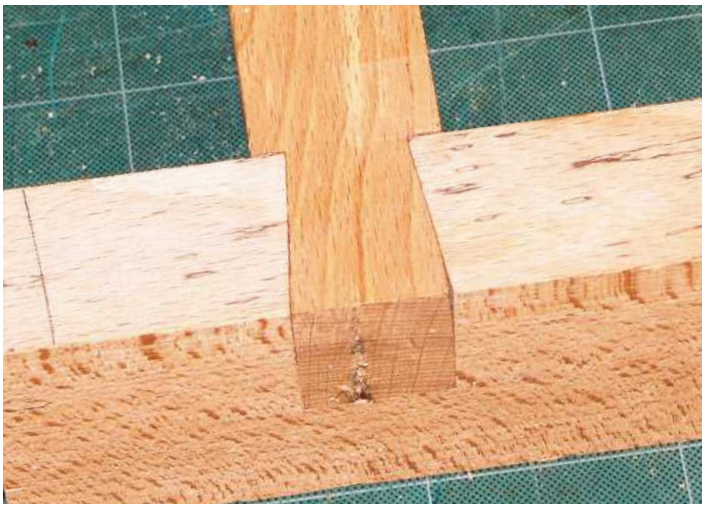
Vertical mitre

So far we have considered what might be called a picture frame mitre. What if you want a vertical mitre to join, for example, skirting boards or a plinth? Vertical mitres are usually cut using a mitre box if no machine is available and you are not used to cutting them free-hand. This is a workshop-aid that consists of a substantial vertical rear fence attached to a baseboard. The rear fence has a 45° kerf cut in it (**Pics.7** & **8**). The piece being mitred is clamped to the rear fence and the saw worked

▲ Pic.7 **Planing in the sawn mitres for a home-made mitre box. This is MDF which I don't like because of the dust, but for jigs it is perfect because it doesn't warp. Take dust precautions though**

▲ Pic.8 **Fitting the back of the mitre box. Make sure it is square; note the hammer. It is easier to locate a component by tapping gently than by pushing**

▲ Pic.9 **Mitre box in use**



▲ Pic.10 **A simple dovetail. The tail cannot be pulled through the narrow neck of the opening in the cross piece. Get some scrap and practise this over and over again**

down using the guide slot (**Pic.9**). Obviously for accuracy the guide slot must fit the saw that you are using. This is why commercially made mitre guides can produce sloppy results.

You also need to be aware that there are left- and right-hand mitres, which means that you will need two guide slots. By far the best approach is to practise on some scrap and get used to cutting every variety of mitre freehand. If you leave them a tad overlong they can be planed in. There are special jigs for just such planing and your shooting board can be adapted. Just Google mitre-shooting-board for an amazing array of images.

Unsafe practices

Magazines are always debating whether we should even discuss 'unsafe' practices. But I do feel that it is worth mentioning that in the old days grooves were often cut on the table saw. This meant removing the crown guard. That is an unsafe and illegal practice in the UK. So if someone tells you that they used to do it that way, don't you do that.

Nowadays you can use specialist guards such as a Shaw or tunnel guard to keep the timber firmly in place and to prevent the chance of hands contacting the blade. You can also use SUVA guards. Whatever system you use, the riving knife must still be in place to prevent binding.

However, the logic of the HSE regulations is that you should use the safest method for the desired cut. And for grooves and rebates the safest method is the spindle moulder or router table. So if you want to machine grooves use the correct machine with the correct guarding and get proper training.

Many thanks to Andy King for clarifying the regulations for me.

Non-standard angles

The rule for non-standard angles is that the mitre must bisect the angle. Interesting things happen when working as a restorer because it is very rare that an old piece of furniture is dead square all round. Until you are very experienced always make up two practice offcuts at 45° and offer them up just to get a feel for the way the moulding will fit. Try to fit the front (visible) moulding first and then when it is secure offer the side pieces up over-length, plane the mitres in if necessary, and then trim off any excess; this will be out of sight at the back of the item.

Odd things will happen with curved mouldings: you may end up with a gap in the middle of the moulding. It is counter-intuitive but one of the pieces needs to be cut concave and one convex. Of course you cannot make that cut with a saw, it has to be cut over length and be chiselled, planed or sanded in. The geometry of mitred mouldings is quite complex and needs a whole chapter to itself. Of course you need a sliding bevel and a protractor.

Simple dovetails

It is worth learning to cut correctly at all possible angles. The ability to cut at an angle allows us to make mechanical joints that can only be pulled apart in one direction – there is even a subtle joint that needs equal pressure at 90° to get it apart, but it is not a foundation course joint. The principle is that the joint is wider at the far end and cannot be pulled through a narrow slot (**Pic.10**). This is a dovetail joint.

Almost every student that I have taught has made dovetails the wrong way round at least, hopefully, only once! This is why I am taking time to show a single half-lap dovetail that you can practise time and again. Full stage-by-stage dovetails will be covered in a future article, but I do like to get students practising their angled cuts early on!

Grooving

The other process needed to significantly widen your woodworking range is grooving. If you make a mortise & tenon frame – and that is how furniture developed in the 16th century – you probably want to put panels in your frame (**Pic.11**).

To do this you will need to run a groove. If working with the grain, which is what you will be doing, you use a special plane (**Pic.12**). In the past every workshop or maker had specialist planes for all sorts of grooving tasks. There is a movement afoot these days for 'HTO' workshops – Hand Tool Only. This is fine and I support it. But, the purchase cost of these planes for a beginner can be prohibitive.

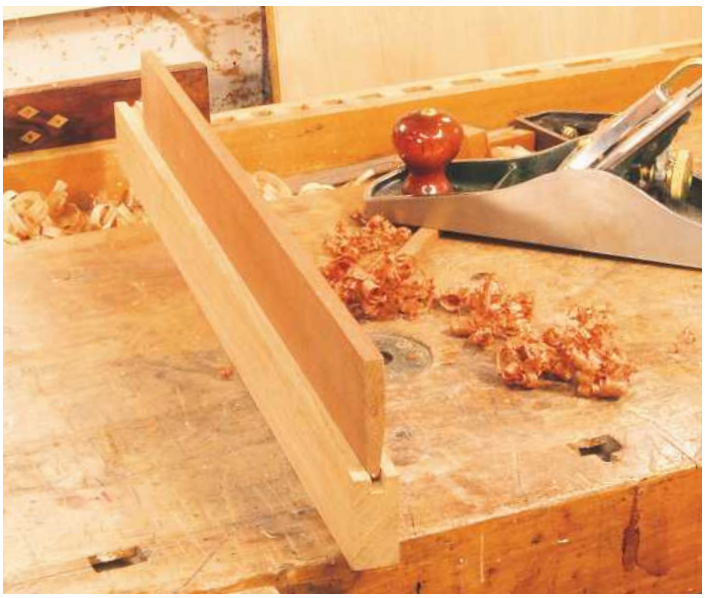
I therefore recommend that you buy a good-quality electric router and use that for grooving until you have purchased all the other hand tools that you need to complete your tool kit. Before you buy your router, read a good beginner's router book such as those by Anthony Bailey or Alan Holtham. They will guide you through which router is suitable and what accessories you need. I love my trusty old DeWalt ½in router. I use a ¼in – and therefore more expensive – router because it has more power and will take bigger router bits. You may not need this capacity. It depends on your work.

▲ Pic.11 **Frame & panel construction in a blanket chest**

The reason that panels were fitted in over-deep grooves (**Pic.13**) is that the panels would expand and contract with the seasons, and the deep groove allowed them to move without splitting. That is why you must never glue a fielded panel into a groove. Fielding just means tapering the edge with a plane in order to get it to fit the groove. By the way, polish the panel before inserting it otherwise when it shrinks you will have a tell-tale line of unpolished wood at the side edges.

If you are working across the grain, for example letting shelves into a wide upright, then you can cut the edges of the groove with a saw and chisel out the waste. You could also use a hand-router, which is a cheap and very useful tool. But bearing economy in mind, the job could also be done with the electric router.

▲ Pic.12 **Ploughing a groove with a speciality plane**



▲ Pic.13 **A fielded panel inserted into the groove; note that it doesn't go to the bottom of the groove**

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Let the garden in

Edwardian in design, **Jason Fisher's** sapele French doors are fitted with modern double glazing to keep out draughts

Mr and Mrs Evans contacted me inquiring about getting some doors made. They knew what style they wanted so I asked them to email me a design that I could work out a price from. I find it easier to do it this way as everyone knows exactly what design is expected and what costs are involved from the start. Once the main details had been agreed I needed to make a visit to their home to take measurements and discuss the minor design details. Sometimes, as here, it is easier to do a full-scale mock-up and let the customer decide when they can actually see it rather than trying to imagine it.

The first task was to get my stock to size. For most of my work I get my local timber yard to mill the stock for me, as it doesn't add much to the cost of the timber and I can reject any pieces that are not up to the grade I want. In some cases I will mill my own timber, but in this case it was easier to buy it in.

▲ Pic 1 **The prepared timber, complete with rebates and planed to size**

First I marked out my stiles, putting two back-to-back and striking a line across them so that I'd know that they were a pair. On this commission I had four doors the same size so I marked each component for each pair of doors. For example, pair one was labelled 1a and 1b. I marked each component from the first one I'd marked, ensuring that any minor faults wouldn't get transferred onto the next piece and then the next, and so on.

The reason for this is that each door has nine components to it so once everything was cut and moulded, I had 36 components all looking pretty much the same.

▲ Pic 2 **Jason made a mock-up of the doors for the customers to see**

▲ Pic 3 **Here you can see the rebate block in the spindle moulder. This was used for the final job, to cut the glazing beads that would hold to glazing units in place...**

▲ Pic 4 **...but there's no reason why you can't do this on a router table. A router was used to cut the rebates**

▲ Pic 5 **Here are the stopped rebates on the middle rails**

Marking out process

You first want to mark out where the bottom, middle and top rails are going to go. The first line is the timber size once it's moulded and the second line is the depth of the moulding and rebate to take the glass. I made the moulding and the rebate the same depth as I cut away the moulding once the joint was made. This made my mortise & tenon size smaller than the actual stock I started with, in this case by 15mm (19/32in), the depth of the rebate and the moulding. You could put a scribe mould on the tenon shoulder to take the shape of the moulding but this involves expensive cutters and machinery.

Once I had marked out where the rails were going to go I moved onto cutting the rails to length and marked where the stiles were going to be on those. With that done I moved onto the glazing bars.

On all the timber, apart from the stopped tenon joints, I left a 10mm (25/64in) overhang to be cut off at the end. The 10mm on the stiles should be left on as long possible, because it protects the corners of the work being damaged during transit to site.

Once all the shoulders and joints had been marked out I moved onto marking out the stopped mortise & tenons and my haunched mortise & tenons using a marking gauge. I used a standard mortise marking gauge with one pin on one side and two pins on the other side; one pin is fixed and the other slides so you can set your gauge to whatever size joint you want. I used a 12mm (15/32in) mortise & tenon so I needed to mark out for that. Because I was also using haunched mortise & tenons I only wanted to mark the full mortise out on the inside face of the timber on the stiles where the tenon was going to be inserted into the mortise. On the back I just marked out where the through-mortise was going to be and I marked all the way around the timber for the tenons. The tenons were marked out and haunched after they had been cut.

Normally I would run all my rebates and mouldings before I marked all this out but on this commission I needed the customer to make a final decision on the height of the middle rail. Until then I didn't know where to stop the rebate for the glass and start the rebate for the raised & fielded panel I was going to make for the lower part of the door. So rather than sitting around twiddling my thumbs I did all that could be done prior to decision time. I marked out for it to go at

▲ Pic.6 **Mortise holes on the door stiles**

▲ Pic.7 **The rebated stiles, completed and ready to be fitted**

▲ Pic.8 **Jason removing the waste from the tenon cheeks...**

▲ Pic.9 **...having cut them roughly on the bandsaw**

600mm (23½in) to the top of the middle rail to the bottom of the door as you can see in Pic.12. That's where I thought it should go to look right, but if I cut it there you just know it would have been moved by 10mm or so.

Cutting the rebates

My customer came to the workshop to see the mock-up of the door and we decided it would be better lower down as there is a window in the room that the doors will be fitted in at the same height, so the middle rail was moved 130mm (5in) lower. This wasn't a problem as I kept all my timber sizes long for machining. For example a 900mm (35in) section would be left at 1200 (47in) until I was ready to cut the joints. This allowed me to pick the best part of the timber and cut out any snipe or other defects and knocks the section had during the machining process.

Now that I knew where everything was going, I was able to cut the rebates into the stiles. Normally I run the mouldings and rebates off in one go, but the sapele I was using seemed to be extra hard, so I ran the sections past the rebate block on the spindle moulder first to clear some of the material out of the way. There are other ways to clear out the material if you don't have a spindle moulder – you can remove it with a circular saw or table saw, a two-flute cutter in a router or even slave away with a rebate plane if you're a hand tool fan.

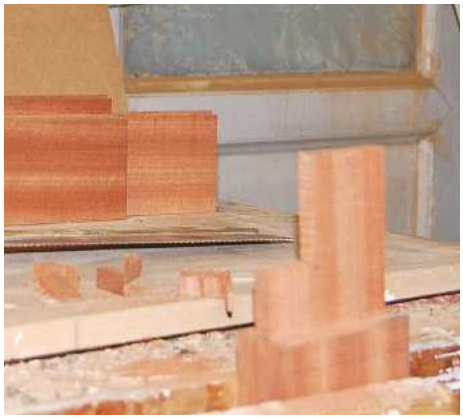
I needed to do stopped rebates on these doors as the top part was going to be double-glazed and the lower part was going to have a raised & fielded panel so that part would need a central rebate.

There is no reason why you can't run the same moulding and rebate down the whole door and fit the raised & fielded panels in with a bead but as my design was supposed to make the double-glazed part look like putty, I wanted a different profile for the lower panel.

Once all the rebates had been run and the majority of the waste was out of the way, I changed my spindle moulder block over to use the cutters I have had custom-made to do my profile. The cutters will also be shaving another 1mm off the rebate just so I would know that both the profile and rebate were at exactly the same depth. This saves messing about when removing the moulding to take the tenon shoulder as I had a reference mark machined in.

The spindle moulder cutters I used were pinned and had limiters to match them. The limiters are slightly smaller than the cutters and go into the block first in what seems like backwards position, then the cutters go in; both of these are located on two pins and a wedge is then fitted between them and this also has two pins/grub screws that you tighten up, forcing the wedge against the two cutters so there is no way they can come loose. I like the idea of four bits of

▲ Pic.10 **A stack of tenons ready for haunching**



▲ Pic.11 **The tenons were haunched to ensure tighter joints**

▲ Pic.12 **Jason used the waste from the haunches for the wedges on the through-tenons**

▲ Pic.13 **Marking the line, Jason needed to hand cut to for the rest of the middle rail**

metal spinning at 7000rpm not coming loose...

I used a power feed on my spindle moulder to pass my timber past the cutter as I needed to drop half of the stiles onto the cutter and the other half of them needed to be pulled off the cutter. This is because of the raised & fielded panel in the lower part as explained above.

Drilling mortises

For the top rail I used a haunched mortise & tenon. I made the through-tenon 50mm (2in), the haunch then becoming whatever was left on the stock. In this case that was 30mm (1¼in) – 95mm (4in) stock less the 15mm deep rebate for the glass, leaving 80mm (3in) stock. All the mortise & tenons for the main construction were 12mm wide. The middle rail needed a through tenon, then a stopped mortise, followed by another through tenon, and the bottom rail required the same.

Once all the mortises were cleaned up I could move onto cutting the tenons. I used a bandsaw to rip down the cheeks and then used the chop saw set with the guide stop to cut the shoulders. I then did any necessary cleaning up with a Stanley 90 bull-nose plane; I used this because the plane iron can get right up close to the tenon shoulder.

The haunches and stopped tenons are 35mm (1¼in) long from the shoulder; I used the waste from the haunches for the wedges on the through tenons. I find it easier to cut the wedges while the waste is still attached to the material, as it saves messing around with fiddly bits of timber and you can just clamp the whole section in a vice.

Once this was done I could try a dry fit of the joint. The waste section of moulding needed to be removed and I put a mitre at

▲ Pic.14 **The supports to stop the break-out during moulding the glazing bars**

▲ Pic.16 **Cutting the mitre at the bottom of the middle rail**

▲ Pic.17 **One of the many mortise & tenons being fitted together**

▲ Pic.18 **Fitting the glazing bars: Jason used an offcut to get them as close together as possible**

▲ Pic.19 **One of the panels, raised & fielded**

▲ Pic.20 **The dry fit proved to be successful, calling for only minor adjustments**

▲ Pic.21 **The doors could then be clamped and glued up**

▲ Pic.22 **Note the chamfer on the bottom rail and raised panel**

the point where the two sections met.

The middle rail could have been made with a gunstock shoulder but as these doors were going to be painted I didn't see the point of the extra work involved for no real structural benefit, so again I used a mitre. I marked out the rest of the shoulder with a marking gauge set to the reference mark my spindle moulder cutters leave (the small quirk before the angle), and then cut this part away with a chisel.

Clamping and checking

Now that the top and middle rails had been dry fitted I could clamp up each door and check the size the bottom rail needed to be. It should be 30mm smaller shoulder-to-shoulder than the top and middle rails, but it doesn't take any extra time to do a dry fit and check just in case you need to tweak the other rails a millimetre or two.

Once the bottom rail was in place I could work out the size of the raised & fielded panel and rebate the door stiles, middle and bottom rails to hold it in place as well as putting a small chamfer on the bottom rail so rainwater would fall away.

The glazing bars

Now it was time to start fitting the glazing bars. I had real problems when making the glazing bars as they kept getting broken when going through the spindle moulder. The part that takes the glass is only around 4mm (5⁄32in) so I had to make up some supports to take the moulding and hold it steady as it went into and past the cutter block.

The glazing bars were jointed with a half lap joint so the front of one bar was cut away, followed by the back of the other bar, and then mitred on the four moulded parts – a very fiddly job and not one I ever look forward to doing. The glazing bars were stop tenoned into the side stiles as well as the top and middle rails and again mitred on the moulding.

Assembly

I did a final dry fit to check that all the glazing bars were sitting where they should be and everything lined up before I started the gluing process. With everything sitting right, I marked which door I wanted to be the slave door and which one the opener and rebated the stiles to meet each other. I also ran a groove down one rebate to take a draught brush seal.

I gave the raised panels a coat of primer before the edges were hidden in the rebate and now everything was ready to be glued and put onto the clamping wall to keep it nice and flat.

Once the glue had gone off I fitted my wedges into the mortise & tenons. I like to do this after the glue has gone off so that I don't knock the work out of square when fitting them. Then I cut off the waste and gave the whole door a good sanding with the belt sander. I used a 120-grit belt on a 100mm sander for this job.

The final task was to run off the glazing beads that would hold the double-glazed units in place. I used the spindle moulder again for this but there is no reason why it can't be done on a router table. In fact before I had the spindle moulder I used to make all my doors and windows on a router table.

Now everything was ready to go to site and be fitted.

Fitting the doors: At war with the weather

"Fitting the doors," says Jason, "took a bit longer than expected as the rain stopped play a few times and the old frames were not perfect, though nothing too bad.

"The customers, Mr and Mrs Evans, had supplied some hand-made handles that complimented the doors perfectly."

Andy King has plenty of experience hanging and fitting doors, and has a few words of advice to pass on:

"Door hanging can be an art in its own right, especially if the frames are out. Luckily these ones were OK for straightness, plumb and size.

"To prevent hinge binding the doors should be shot with a slight relief bevel of a couple of millimetres. On a single door the same bevel should be done on the leading edge, so a slight bevel on these rebated doors also helps.

"A clearance around the edges of the doors should be equal. Usually known as 'a penny gap', this relates to an old pre-decimal penny with a thickness of around 1.5 to 2mm fitting all around the door edges.

These doors open externally so could benefit from a slightly larger gap especially if they take excessive weathering."

I was sold the saw on the right for cutting rigid foam insulation. Its wavy blade doesn't produce dust – unlike the panel saw on the left. Well, that much is true – and dust is a nuisance – but it requires a lot more effort as the knife cut binds on the blade. It might be fine for thinner foam. Mine is 100mm. The saw is going back to the merchant.

Avoidance therapy

Edward Hopkins would prefer to admire the view than get on and tile his new garage workshop. But in between shouting at the cat and grumbling about saws he's also been making stairs...

It's more of a spasmodic surge or a slow splutter than a Big Bang, but I see my garage/workshop as a creative event. It wasn't there and now, blow me down, it is. I can walk on the attic floor 8ft up in the air. Before that there had been only trusses and between each, menacing drops to the concrete below. Now I can stride magisterially from one gable to the other seeing how the view changes, the light shifts and the wind blows.

Handling sheet material

My local builders' merchant has these American sawhorses on offer. They are light, strong, sturdy and a bit clever in the way they unfold and lock. They're ideal for sawing an 8 x 4ft sheet because, as you can see, they'll bear weight. The slots at the ends of the trestles can take timbers, so an 8 x 4ft worktable (or impromptu picnic table) could be put together in moments. You'll find them on line, on Amazon for instance, if you key in 'Toughbuilt C470 sawhorse', but check with your builders' merchant first

Working alone and with limited tooling can be awkward. Here it is anything but. I arrange the trestles and rest the sheet of ply so that when it is sawn in two both pieces balance. I do this by eye and so a steadying hand and a knee are sometimes needed. Getting it right is a minor pleasure but a pleasure all the same

A string in the tale

Here's another way to avoid the jobs you don't fancy: do something completely different. I woke up the next morning and decided to make a staircase to the garage loft. A day and a half later, it's done. It is an open-tread staircase shallow enough to walk down forwards. The main work was in making a jig with which to rout the housings.

▶ Pic.1 **Offcuts of Imogen's table were good straight components for the jig. Edward cut the string to size, rested it in place and struck a horizontal line. This is the line of the ply shown here as it is cramped in place and screwed to rails. These have to be deep enough to withstand the trench about to be routed. He put thin card in as a spacer so that the jig would move: this proved unnecessary, and when he remade the jig for the other string he omitted it.**

▲ Pic.2 **He used callipers to transfer the thickness of the tread to the string. The nearest router cutter he had was not wide enough, so the jig had to allow for the router to travel against one fence and return against the other. Getting exactly the right width is all-important. Loose is better than tight which becomes a battle, but snug is, as always, ideal**

▲ Pic.3 **The finished jig in action. It took four or five passes, lowering the cutter each time**

▶ Pic.4 **The treads are dovetail nailed with two 3in round wire nails. Ed's a fan of dovetail nailing. Only a slight convergence of nails is needed, and nothing short of destruction will separate the components**

▲ Pic.5 **He marked out the nail holes and drilled through the string, being alert to the possibility of misalignment and so feeling the tread for any swelling were the nail to go awry. If he'd driven it home and found that he'd burst through the tread, he would have been truly stuffed**

▶ Pic.6 **Another milestone attained in the building of the garage workshop**

I started to imagine cupboards, lighting, black-and-white squared vinyl flooring and a desk at the east end – or should it be along one side? – when I stopped: this is proliferation. No sooner am I happy with one thing than I want to be happy with the next. I pedalled backwards. I went down the ladder – perfectly fine for now – and brought back a garden chair. I used the hop-up as a table. I made a cup of tea and sat there quietly for the first time in my life – or anybody's life for that matter. What a wonder it is to make things! It's a privilege that demands to be savoured. I think I might have a biscuit.

It's a cliché, but none the less true for that, that it's not the destination that matters but the journey. Arrivals don't last long. I am surprised and delighted right now, but soon I will take my floor for granted. Then I'll take the windows for granted. A magical act of building is wiring: there is something miraculous about pressing a little piece of white plastic and having the lights come on. I'll take that for granted too. I'll be worrying about the tiling or the plastering, whatever comes next. The garage won't be finished, I'll tell myself, until I've surfaced the hard standing. Till I've fixed up the outside lights. Planted the flower bed. It'll go on and on and it will never end. If I'm looking for the end I'll be eternally disappointed. Better then to enjoy each stage for what it is and nothing more.

Gratifying work

Like you, I've had woodwork go well, and I've had it hiccup and drag. The jobs I've enjoyed most have been good at every step. When you know what you want, buying timber is a job in itself. So is marking it out with chalk and making those first cuts, ripping off the sap, and slicing through the heart. Planing is like tearing off wrapping paper and finding a beautiful present beneath – strong, workable, as finely marked as marble. A pile of components clean and square is full of promise: so too, when your tooling is performing well, the stacks of joinery. How satisfying is a snug joint that taps together perfectly? How gratifying the tiny pearls of glue that blossom at the last tweak of the cramp?

It's no use being in the moment if you don't enjoy it, but not all aspects of the job are equally appealing. I'm finding this out again. Building a garage – the simplest, squarest, most efficient building there is – is a joy to see through. It's fun but it's also hard work.

Crabbing up a roof moving tiles around, nailing and clipping them – we live in an occasional wind tunnel – in the cold, or worse the wet, is dispiriting. I've put this off for several weeks but I can't put it off any longer because I want to use the 4 x 2in I bought as temporary scaffold planking, and I have to finish the roof before it comes down. Ugh!

Making it possible

To avoid the unpleasant job of tiling the roof I went to work on the ceiling, cutting and fitting 4in rigid foam insulation. This puts flesh on the bones and the shape of the attic room comes into focus. I did it well, but all along I think I knew I did it wrong. I was doing the easy bit first, starting on the top half. It would have been better to start at the bottom because then I could have slid the insulation down behind some braces screwed diagonally to the trusses. Never mind, I told myself, it will be possible.

It is possible, Just. I have to cut several small pieces of foam, taking care that they fit the gaps between the trusses. The gaps should all be the same size but with our best efforts and the flexibility of wood, they aren't. I slide between the queen posts, half on my back like a mechanic off his trolley and hope for a snug fit, the side of my fist the only tap needed. Instead I take a club hammer and a piece of waste ply and thwack the foam home in a cloud of dust, and sometimes, without wanting to sound like The Lone Ranger, a burst of fury. By the end of the afternoon I am not in the best of moods. Yesterday I shouted at the cat.

So this morning I took a look at the sky and it was fine. Suddenly crabbing up on the roof didn't look so bad. In fact, I rather fancied it. And it wasn't an unpleasant job. I've got the hang of it now, though I've made a fundamental error in stacking the tiles: there are too many up there and I have to shuffle a buffer of tiles behind me.

I nailed four columns of tiles, and then I ran out of nails in my belt. Or was it clips? Anyway, I took it as a sign to quit while the clipping was good. Tomorrow I might approach the foam in a calmer state of mind. I might carry on crabbing. I might do something else entirely. It's best not to think too much about it, not at this time of day. I'll see how I feel in the morning.

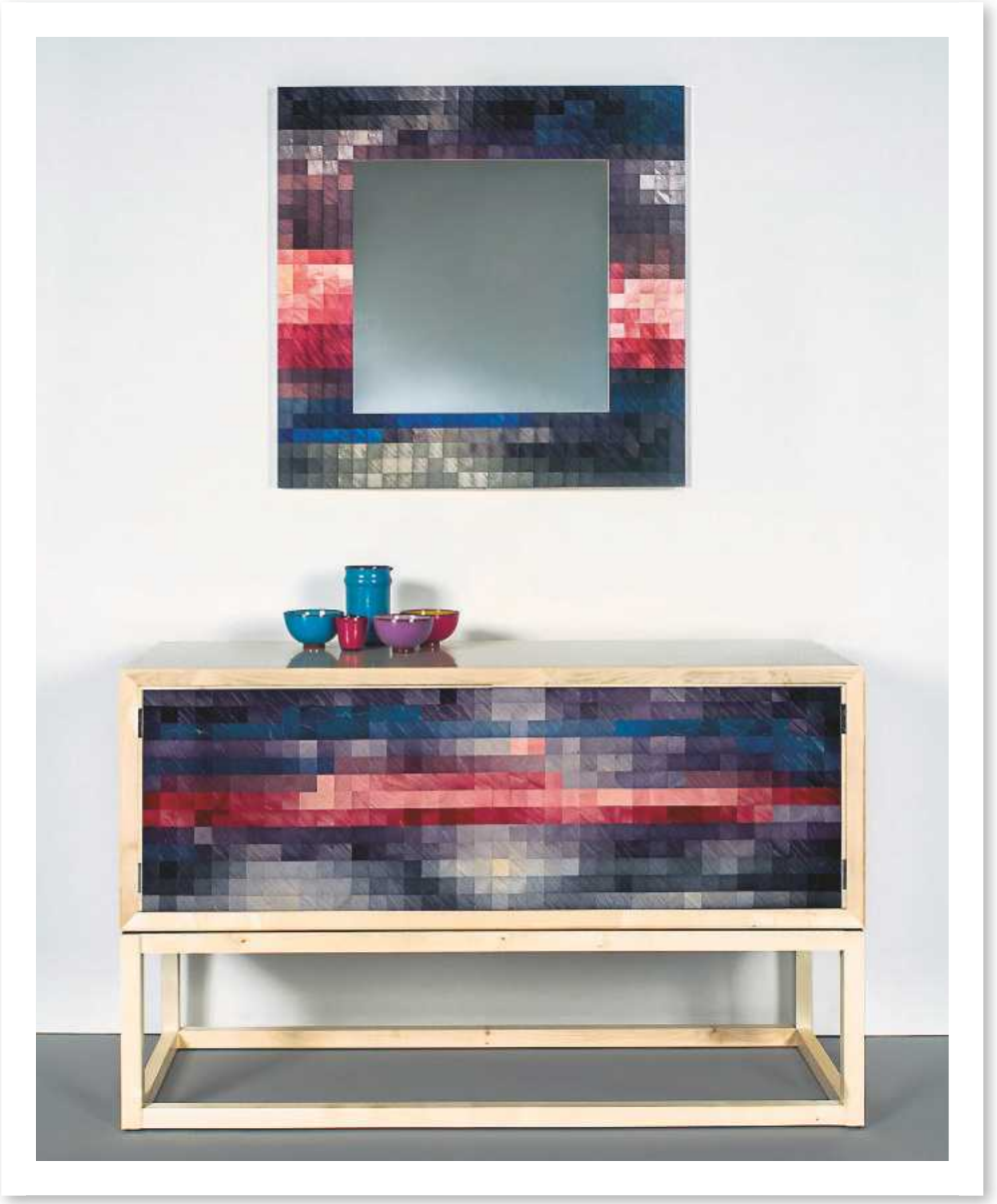
Hazel & jeans

I'm not the only one who goes off at a tangent. Richard – you met him last month – put this chair together from green hazel and an old pair of jeans. It shows a facility with tools, an understanding of materials and an eye for appearances; but more than that: it is forthright, honest and unpretentious; spontaneous and lighthearted, as carefree as a chair could be. Richard's normal work is straight and square with spot-on accuracy: this looks to me like an antidote.

I asked him if he'd secured the joints, possibly with thin dowels as pins never hold. My concern was that as the timber dried, the joints would loosen. Richard said: "It would be far better to dry all the components first. I didn't but even though the chair has now dried it is still completely solid. I didn't dowel the joints, just hammered them in with some glue. It took about a day, spoke-shaving the bark off and putting the chair together; the seat took less than half a day. I might add that it is surprisingly difficult to drill and cut components when everything is wonky, different in size and non symmetric: all very non-cabinetmaking!"

Richard's chair made from green hazel and denim

Photograph by Richard Green



How hi-tech can embellishment get? Morning Storm sideboard with pixillated veneers by Kevin Stamper

MORNING STORM & PLUM BLOSSOM

Sycamore, veneered sycamore hand cut and stained

I begin with a watercolour sketch of an inspirational view. With Morning Storm and Plum Blossom it was a beautifully resonating moment captured from nature. The sketch is digitized, reduced to a very low resolution to form the decorative element incorporated into the overall furniture design. Each square on the pattern is matched in colour and tone with a hand cut and stained piece of sycamore veneer and all of the squares are accurately joined together to create a representation of the original sketch. There can be up to ten different colours each with ten graduations of tone on a set of doors – a time-intensive labour of love that creates dramatically beautiful centrepiece objects. My signature style is achieved by painstaking exploration into the processes of pixillation and colour-dying veneers. Each unique piece of furniture is hand-made to the highest standard using the finest materials by myself using both traditional and innovative techniques.

Kevin Stamper
www.kevinstamperfurniture.com

About Kevin Stamper

Kevin trained in design and furniture making at Winchester. He set up Kevin Stamper Furniture in 1992 with a workshop based in Wimbledon, London. He has successfully shown furniture at many exhibitions including Decorex, House & Garden, Celebration of Craftsmanship, Art In Action, SOFA (Chicago) and Classic (Belgium). It will be on show at Design Shanghai, www.designshowshanghai.com@DesignShanghai, from 27 to 30 March when he will be showcasing brand new work that develops his unique style while still retaining his trademark bright colour palette. His work has received guild marks from The Worshipful Company of Furniture Makers. He is currently developing one-off bespoke pieces and schemes, including a commission for the furniture in a Michelin-starred restaurant.

Morning Storm interior

Whiskey cabinet interior

Plum Blossom whiskey cabinet

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Contemporary classic

Alan Willey's timeless design relies on crisply executed detail for impact

A set of nested tables combines the virtues of handiness and versatility with space saving. These pine tables were made to match an existing softwood TV unit and open out to give just under 3.5sq ft of table top yet have a footprint of less than half that when stowed.

Maximum height, minimum headroom

The construction of even the most straightforward nest of tables, however, needs to be thought through if the tables are not only to fit underneath each other but also be able to stand flush at the front when nested. The dimensions will depend on the balance you strike between the proportions of the tables' tops and their framework. In my case, the tallest table was to stand 19in high including the ¾in-thick top, which would measure 18 x 13in; the legs, meanwhile, would be made from 2in-square stock. Together, these dimensions allowed me to calculate the sizes of the tops and legs for the two smaller tables.

After machining my square-stock pine down to a finished dimension of 2in-square, the first four legs were cut to a length of 18¼in, while the legs for the second table were cut to 16½in, and the final set to 15¾in. To ensure that the legs in each set were all the same length, by the way, I used a stop-block on the mitre saw; I never underestimate the potential for making mistakes, even after all my years in the workshop.

Having decided which side of the legs would be the show faces, each set of was clamped together, making it easy to mark out the joints accurately. You can see from the drawing over page that the lower mortises were set out ½in-square to accommodate the tenons on the 1¼in-square rails, while the upper mortises were cut to ½in wide and 1½in high for the deeper 2 x ¾in aprons.

The mortises themselves were cut using my bench-top mortiser, and it's a good idea to get into the habit of forming the joints at this stage since, if the legs are to be shaped, you'll find it far easier to cut joints while the components are still square. The design of these particular tables didn't call for turning, of course, relying instead upon a simple cove detail to decorate

▲ Pic.1 **Side rails: The plain appearance of the legs, aprons and rails was lightened by the waisted effect created with a half-round cutter while...**

▶ Pic.2 **...an ovolo cutter was used to mould the edges of the table that were made up from biscuit-jointed timber**

each corner of the otherwise plain square legs. These coves were routed with a half-round bearing-guided cutter, stopping the detail ½in short of the mortises to give a pleasing waisted effect. Finally, before the legs were finished I formed a slight chamfer on the bottom of each leg (see Tip).

The three apron pieces were cut from 2 x ¾in timber; the overall lengths (11in for the side pieces, and 17in for the rear piece) allowed for 1in long tenons on either end. There's no apron at the front, of course, which is left open to allow the next table to fit underneath.

The lengths of the apron pieces for the other two tables are proportionately smaller: two at 11in and one at 14in for the second table; and two at 7½in, and two at 12½in for the smallest table, which has an apron all round. While the saw was set up to cut each of these jobs to length, I took the opportunity to cut matching sets of lower rails from 1¼in-square stock.

Table saw tenons...

While it should always be your aim to make well-fitting tenons, it's particularly important in a table like this, which has only three apron rails at the top and therefore relies even more upon the strength of its mortise & tenon joints. To this end, I set up my table saw tenoning jig using an offcut from one of the apron rails in order to achieve a perfect fit. Once set, this jig made short work of the tenons, after which the apron pieces were given a light sanding, a job that's more easily done now rather than after assembly.

To finish the apron pieces, I routed a cove section to the bottom of each one to match the legs. This sort of task – doing relatively simple work on fairly small pieces – is where a non-slip router mat comes into its own, doing away with vices and clamps, yet still ensuring the workpiece is held safely and securely. I also routed slots on the rear side of the apron pieces to house the buttons that would hold the tops in place.

...and tabletops

The tabletops themselves were each made up from four 18in-long sections of 4 x ¾in softwood made up into boards with biscuit joints. Once dry, the resulting blanks were dressed off with a belt-sander to remove any high spots, then given a light sanding with a random orbital sander and 120-grit paper to remove any scratches.

After cutting each top to size – 20 x 14in, 15 x 10in, and 12 x 8in respectively – I rounded off their corners and routed the edge detail using a bearing-guided ovolo cutter. Meanwhile, the buttons with which the tops would be fastened to the frames were made from scraps of oak and drilled with countersunk holes.

Using all of my clamps and even a couple of luggage straps – I really must buy some more clamps – I dry-assembled the tables on my saw table, whose flat surface I was relying upon to show up any variation in the length of the legs. Thankfully, the stop-block on the mitre saw had done its job, and all the tables were free of rock (but see Curing uneven legs).

Curing uneven legs

If Alan's legs had shown any tendency to rock on the saw table, the trick to curing the uneven legs would have been to set a spirit level side to side across the table top and pack the short leg(s) until the table sat true. To ensure that the table was also level fore and aft, the level would then be turned through 90° and laid front to back on the tabletop, and the packers tweaked as necessary.

The level to which the legs would then need to be cut for the table to sit squarely on the ground would be shown by the largest gap between the saw table and the bottom of the legs. Using a gauge corresponding to this height, and with the table held level, a pencil line could be struck around the other leg(s), which would then be cut to the mark(s).

TIP

Preventing split ends

Unsupported end-grain on the outside edge of a parallel-sided leg is vulnerable to catching and splitting if the furniture is dragged across a floor. Chamfering the leg will help to reduce this risk because the end-grain that's in contact with the floor is supported on its outside by timber that's free of the ground, and therefore can't be pulled and split.

▶ Pic.4 **The oak buttons secure the table top while allowing for movement; the runners, meanwhile, help to 'park' the next table**

Once satisfied with their fit, I dismantled the tables and made the final pieces – two pairs of rails that were biscuit-jointed to the inside of the side aprons of the two larger tables where they act as runners to guide the top of the nesting table as it's slipped into place.

Finishing

After covering the tenons and blocking the mortises with masking tape, I gave all of the pieces a coat of cellulose sanding sealer, which I thin 50/50 (see Tip). When dry, I added a second coat of full-strength sanding sealer to help give some build to the final finish.

A last sanding through to 320-grit completed the preparation ready for the acrylic varnish which the customer had decided upon in order to give the tables a hard-wearing surface; they are, after all, the perfect height to receive a hot cup of tea! So, after dusting the pieces down with a tack cloth, I applied four coats of a water-based acrylic varnish by brush, denibbing each coat with 400- and 600-grit paper. Then, after leaving them overnight to dry, I burnished all the pieces with 0000-gauge steel wool to give the varnish a warm, flat sheen which I think is very pleasing to the eye.

The tables were then assembled using my old favourite, PVA, only to find when they'd cured that the smallest table had a slight twist in it and wouldn't sit level on the floor! I suspect that this was caused by the top warping slightly after the finish had been applied, but luckily the unevenness was cured by sanding one of the legs lightly and then retouching the varnish.

TIP

When applying sanding sealer to softwood, I thin the first coat 50/50 to encourage it to really sink into the wood and seal the fibres.

▲ Pic.4 **Handy and space-saving: nested, these tables have a footprint of about 1.6sq ft...**

▼ Pic.5 **...opened out, they offer nearly 3.5sq ft of table top**

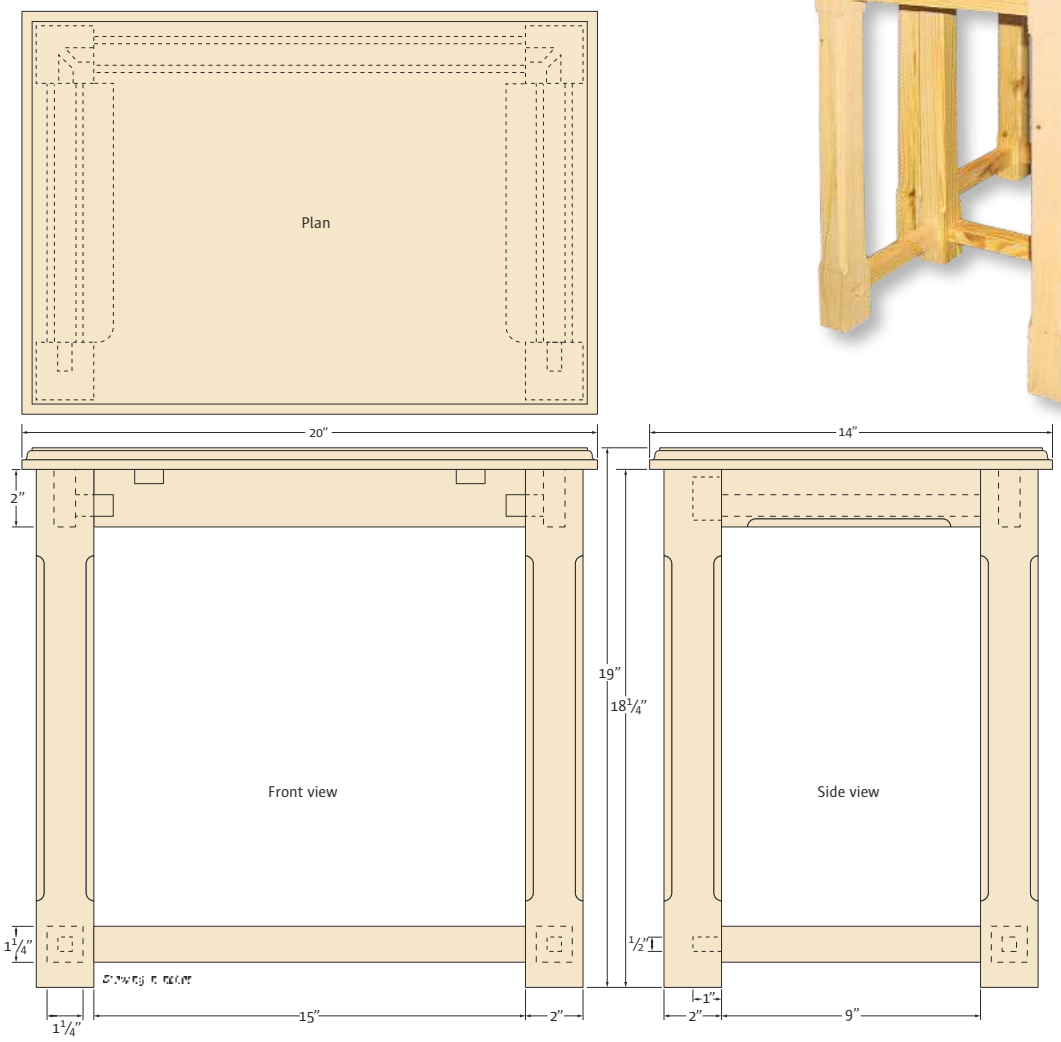

Fig.1
Dimensions for largest table

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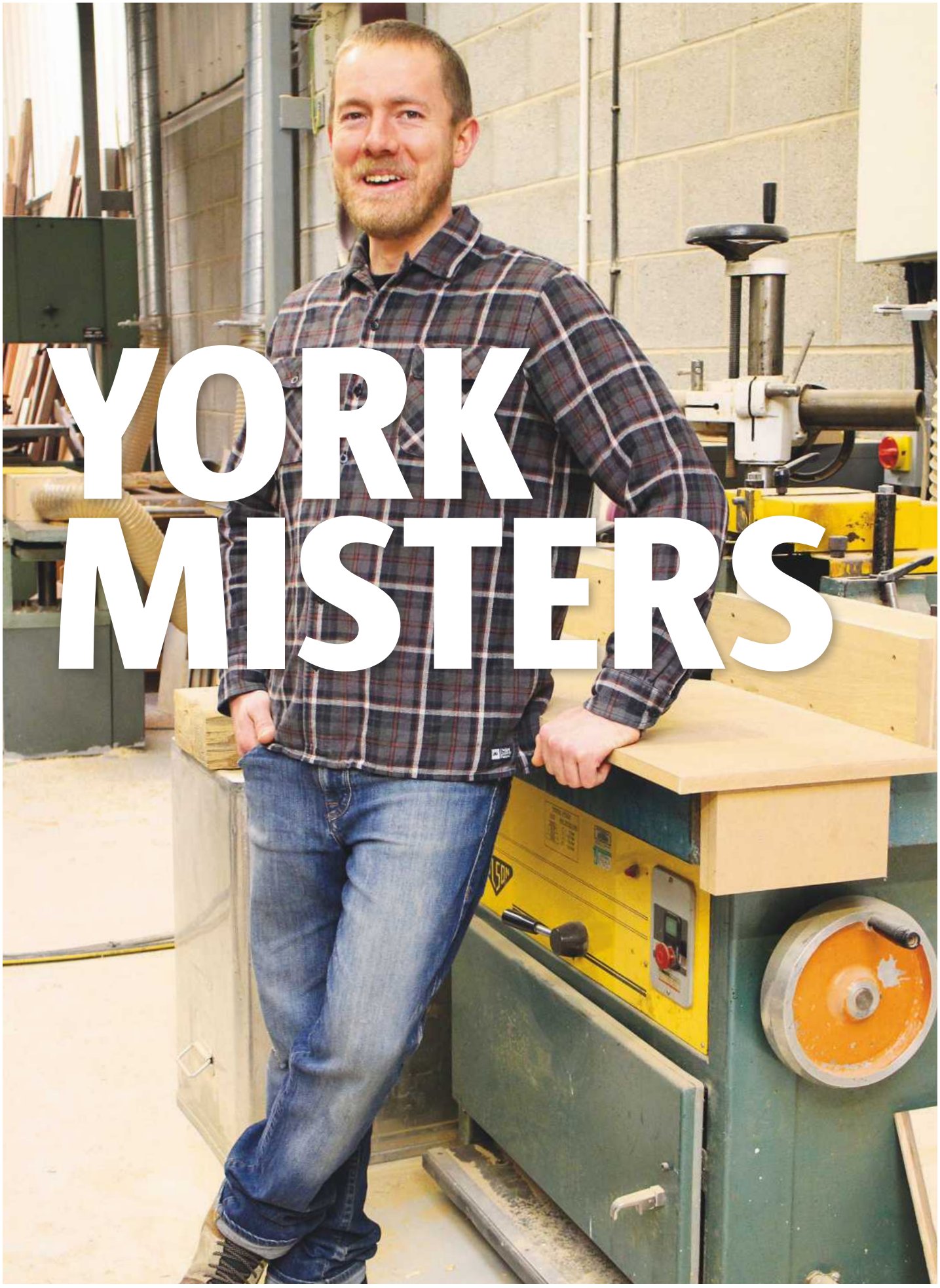


With the beauty of York Minster at sunrise to gaze upon no wonder Jacob and Luke came home

On this leg of the *GW* road trip **Andrea Hargreaves** meets two canny designer-makers, one at the start of his woodworking career and the other well established

Lounge chair by Jacob Pugh
Photograph by Splinter Designs

Detail from Lounge chair
Photograph by Splinter Designs

As we attempt to reverse onto a rush hour A road, our ingress having been thwarted by a pair of locked gates, we narrowly miss a man on a bike, weaving niftily through an open but narrow side gate. That's what comes of relying on satnav rather than looking out for road signs. Safely on the road again we find the sign directing us to the back of the units where Jacob Pugh of Splinter Designs has his workshop.

Some small talk follows while I fish out my notebook, Mark produces his camera, and cups of tea and coffee are made, in the course of which I ask Jacob if he lives far away. "Ten minutes' cycle ride," he says. "Did we nearly knock you off your bike?" I ask, recognising sod's law when I see it. "Were you in the Mini?" and he grins.

Well, that little awkwardness over, we establish another related aspect of our stop in York. "Who else are you seeing?" asks Jacob. Upon hearing it's Luke Caley, see over page, he says that Luke came close to renting workshop space from him following their meeting at Leeds university when Jacob saw his work at the finals show. "We're quoting for the same job at the moment," he adds.

Finding that he was always gravitating towards furniture while doing A-level art and design technology at school, at 18 he did a foundation course at Harrogate, which led to fine crafts at Bucks uni. "This was half design and visualisation and half making. I graduated in 2003 or 4 and did New Designers. It was good experience."

And he needed it, for not long afterwards he found a job on the internet working for a guy with an interiors and furniture design business in London "where I learnt how not to run a project. He was completely airy-fairy, promising clients the world and delivering nothing. He subbed it all out."

So it was fortunate that Jacob had picked up worthwhile experience while at Bucks with office furniture manufacturer Stewart Linford. "It was well made, veneered, with solid lipping." He also did a year's placement in Chiswick, London with Windmill Furniture and Isokon, working four days a week and one day at college on a module. "It was the most useful thing I ever did. It was a professional place and I learnt how you do things properly. In my final year I could work at speed."

Own business

At only 23 he felt confident enough to set up his own business in London, advertising in a directory and getting some repeat customers, though he admits that "I probably didn't see the whole picture. I set up with a partner but

Busman's holiday

Look at the crisp dovetails on this Splinter Designs desk
Photograph by Splinter Designs

Luke Caley at home

One of Luke's cherry stools

Luke is renovating a set of bentwood chairs...

...and he made this TV and hi-fi unit

Luke's desk is covered by a tambour
Photograph Luke Caley Design

Luke's model-making skills came to the fore...

...when designing benches Photograph Luke Caley Design

that petered out after four years. I rented a bench [for two years] in the National Youth Theatre workshop in Holloway Road – one of my brothers worked for them for a time – making everything from vanity units for bathrooms, wardrobes, then started doing interactive designs for museums for HB Source," including one for a children's museum in Jordan, with Formica wrapped around a form.

"It got to a point where I had to take the plunge and set up in Crouch End at three times the price this is" – he indicates his 1000sq ft of workshop luxury. He moved back home in 2011 after seven years in Crouch End. "That was when the recession hit. Big building contracts went bust so work dropped off rapidly. Then my business partner left; six people employed on a casual basis, then there was one." Now he rents space to furniture maker Ben Croft.

While he is still doing bespoke jobs in London Jacob can work much more cheaply in Yorkshire where he has a lucrative line in birds. These are migrating worldwide, roosting on displays in such prestigious outlets as the V&A and Design Museum gift shops and at Liberty's. His elder brother Matt makes owls, which he has shown with Jacob's birds at the Maison d'Objets show in Paris.

"My plan for this year is to develop a whole range of bedside tables, coffee tables, benches." Items will be linked by construction details although the shapes will be different. Very much the jig king, see panel, production will rely on these to hasten batch work.

He uses AutoCad and SketchUp and is hoping to have the range ready for the London Design Festival in September, maybe showing at 100% Design or Design Junction.

Luke Caley Design

Back in the town centre we find Luke in his immaculate home furnished with a mix of Mid-Century style and his problem-solving exercises. One piece is a simple round side table on metal legs with a V-slash of blue. "There were loads of cherry logs lying around, and rather than slice them up – they had a split – I introduced a coloured wedge." He made four of them, using metal legs from WickedBoxcar, a London firm that makes furniture from reclaimed timber.

This treatment is typical of Luke's approach. Look on his website and you see examples of how he is able to maximise limited space, in kitchens for example. "I love problem solving.

Fly-away success

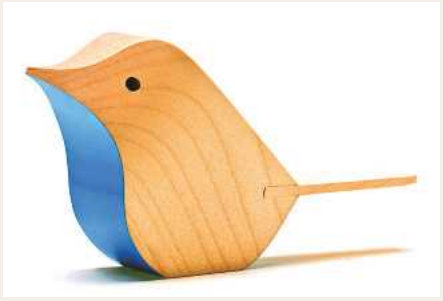
Jacob has been selling his birds for four years and they contribute out of all proportion to their size to his profits. "I'm inspired by birds. I wanted to recreate a bird you could pick up and get a close look at. I wanted to make something that I could see selling in design shops."

He has a number of jigs to aid the production of these cute pieces. Made in sycamore or walnut and finished in a range of colours or metal leaf, the birds retail for between £29 and £35 depending on finish.

Briefly the process involves planing the timber blanks to fit in a multi-bird jig, marking the shape of the birds sitting in their row, drilling eye holes, sawing the plank in half for two rows, chopping into the pairs and then cutting around and shaping each pair before applying finish. To see for yourself go to www.splinterdesigns.co.uk/jacob_pugh_bird_video.htm

Jacob can create a huge flock with this jig...

...while this one holds a bird tight for shaping



In the words of the song, this little bluebird came looking for you
Photograph by Splinter Designs

The birds come in many finishes Photograph by Splinter Designs

Busman's holiday

Luke's whimsically named DrawerBox Photograph Luke Caley Design

Detail from his Ivy Table Photograph Luke Caley Design

Detail from Luke's plywood kitchen commission
Photograph Luke Caley Design

It's one of my main reasons for doing it [making furniture]." He refers to a plywood kitchen commission where the client required access under the stairs and in front of them. "I came up with the idea of a central island unit on castors – a simple thing that worked really well.

"A prototype that I did at Leeds was a solution for someone who had a small space." With that he takes us upstairs to show us a desk he has made as a complete home office in a small bedroom. Tambours mean he can hide his work away at the end of the day. "I'd love to develop it as batch furniture." The desktop is a Linoleum-type synthetic leather which he says gives a pleasant writing surface. He made it in sycamore bought from North Yorkshire company John Boddy's.

His inspirations

He is also friends with two furniture dealers in London who sell Mid-Century furniture. "I'd like to do a range with them and exhibit at shows and see what happens." Who inspires him? "Eames, George Nelson of Vitra. I'm also inspired by architecture, like the very sculptural buildings of Santiago Calatrava. He studied the human form very closely. I'm inspired by new designers too, like Matthew Hilton, Sean Dare."

He says he likes simple clean design that works. "It goes back to problem solving. Often the simplest way is the best and that's true of Mid-Century. We're living in a period of austerity now. People my age" – he's 31 – "have Mid-Century furniture because it's cheap and easy to get hold of. They used warm materials – teak's a really nice wood. It's nice that it's back in vogue."

Against a wall in his sitting room is a bi-fold drop-down room divider inspired by George Nelson. "When I design a piece I like to see what other designers did." In a corner is a built-in unit for the TV and media stuff. A handy cupboard underneath neatly conceals the meter behind sliding doors.

The wooden floor in the dining room came from a school in Nottingham. "I love the idea of something nobody wanted getting a second life." Around the table are assorted bentwood chairs that he is stripping down and refinishing.

In the kitchen, yet to be refurbished, a wine rack that he made is hung from the wall.

Model for Gherkin

Luke trained as a model maker, graduating in 2006, and his early work included a model for London's iconic Gherkin building. "I enjoyed it. I liked using my hands but it wasn't very fulfilling. I moved back to Yorkshire and got a job as a space planner for office furniture. I started seeing furniture as a much more important part of your life than just sitting on it. It's a really wide area. I love being a designer and I love using my hands; furniture design and making is one of the only areas where you can do both." So, with the recession in dismal swing, he took advantage by building up his making skills.

"Model making gave me precision; those skills do transfer." So he went back to Leeds university, graduating in 2012. "It's a real shame that the Leeds and Bucks courses have finished," he laments. So say all of us.

Then followed work with local cabinetmakers including David Wilson. "He's great. He's good at giving new guys an opportunity. He gave me a couple of jobs."

After a year Luke decided it was time to branch out on his own, but cautiously. For the moment he's renting space in a busy workshop and regarding furniture making as his hobby rather than his income, that currently coming from designing for a bathroom retailer.

"My eventual goal is to set up as my main business but it's going to take a long time to get there."

In the meantime he shows us some neat models of benches that demonstrate just how good he is at model making. These translated into full-size benches, each one made out of three new oak railway sleepers. He doesn't use glue and the joints are fixed by bolts.

I ask him about meeting Jacob. He smiles warmly. "Jacob's a really good guy. I was going to do some work with him but it never really worked out. He came to my degree show and saw a bench I'd made. I went to his workshop. It's good to know people." Being nosey, I really want to know who's going to get the job that they both bid for. With two such obviously good men it's hard to say the usual 'let the best man win' when one is already a winner and the other is close on his heels.

Contacts

Splinter Designs, Jacob Pugh
www.splinterdesigns.co.uk

Luke Caley Design
www.lukecaleydesign.co.uk

WickedBoxcar
www.wickedboxcar.com

David Wilson
www.dovetailors.co.uk

John Boddy's
www.johnboddytimber.co.uk

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Precisa 3.0 P-1	Workshop	Inc STC + TWE + TLE (see below for explanation)	3.5 / N/A	90 mm x 1400 mm	£1207.50	£1449.00
Precisa 4.0 P-1	Professional	Inc 1.4m STC + TLE (ditto)	3.5 / 5.2	87 mm x 800 mm	£1775.00	£2130.00
Precisa 4.0 P-2	Professional	Inc 1.4m STC + TWE + TLE (ditto)	3.5 / 5.2	87 mm x 800 mm	£1980.00	£2376.00
Precisa 6.0 P-1	Professional	Inc 2m STC + TLE (ditto)	4.0 / 6.5	110 mm x 1400 mm	£2416.67	£2900.00
Precisa 6.0 P-2	Professional	Inc 2m STC + TWE + TLE (ditto)	4.0 / 6.5	110 mm x 1400 mm	£2590.00	£3108.00
Precisa 6.0 VR P-1	Professional	Inc 2m STC + TWE + TLE + scrorer (ditto)	4.0 / 6.5 + HP scorer	110 mm x 1400 mm	£2890.00	£3468.00

STC = Sliding Table Carriage. TWE = Table Width Extension. TLE = Table Length Extension.

Scheppach Precisa 3.0 is designed by scheppach in Germany but made in China where scheppach resident engineers oversee manufacturing quality control. Precisa 3.0 has the same warranty as Professional Series. Scheppach machines have been sold and serviced in the UK by NMA since 1972. Go to nmatools.co.uk and see what users say about NMA unprecedented service.

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The Woodworking Institution is back and Celebrating 60 years!

The brand new Trend Routing Technology 2015 Routing and Woodworking Catalogue is NOW available!

Trend's Head of Marketing, Luke Hulley adds: *"2015 is a very special year for Trend as we celebrate our 60th year. I'm always pleased to hear how important the Trend catalogue is to our loyal customers and this years will be extra special as we are launching some exciting new products"*

The catalogue is packed with Trend products such as:
Router Cutter Ranges, Power Tools & Tables, Routing Jigs and Accessories, Saw blades, Trend Snappy Drill System, Sharpening & Clamping.

trend routing technology

To get your hands on the brand new catalogue please visit your local Trend Routing Center or download/request a copy online at: **www.trend-uk.com**

Don't have Internet access?
Give Trend a call on: **01923 249911** to request your copy.

For more information contact:
Luke Hulley, Head of Marketing, Trend Machinery & Cutting Tools Ltd., Odhams Trading Estate, St Albans Road, Watford WD24 7TR
Tel: 01923 249911 • Fax: 01923 236879 • Email: hulleyl@trendm.co.uk

How fast can you scribe?

Trend is excited to announce a very special new product, which will change the way you scribe forever!

The Trend Scribemaster Pro skirting board scribing jig for use with a router is now available and is packed with features and benefits:

trend routing technology

- Pre-assembled, ready to go
- Quick & easy to set up and use
- Up to x10 faster than manual scribes
- Precise cuts every time
- Cuts any skirting or dado profile
- Scribes profiles into kitchen plinth
- Cuts left & right hand scribes
- Even scribes warped boards accurately
- Quick mounts onto mitre saw bench*

Trend's Head of Marketing, Luke Hulley adds:
"The Trend Scribemaster Pro is a fantastic piece of kit and the feedback from demonstrating this at recent shows has been very positive. People have been blown away on how quick and simple it is. Time is money and with The Trend Scribemaster Pro you can save time on scribing without compromising on the quality of your cuts".

To find out more about the Trend Scribemaster Pro please visit Trend's website: **www.trend-uk.com** or Trends YouTube channel and Facebook group for videos of the Trend Scribemaster Pro in action.

RRP £299.00 PRODUCT CODE SM/PRO

For more information contact:
Luke Hulley, Head of Marketing, Trend Machinery & Cutting Tools Ltd., Odhams Trading Estate, St Albans Road, Watford WD24 7TR
Tel: 01923 249911 • Fax: 01923 236879 • Email: hulleyl@trendm.co.uk

Trouble? Today as then, just send for Trend...

Cut Diamond

Trend Machinery & Cutting Tools has been making aids for woodworkers since 1955 and 60 years later is going even stronger

Trend Machinery and Cutting Tools Ltd is celebrating an extra special year in 2015; it has passed the milestone of 60 years in business.

Trend was founded in 1955 by Jim Phillips and is still family owned. It supplies the UK's leading brand of router cutters, jigs and woodworking accessories. Trend also has a successful export business, supplying customers across the USA, Europe and many countries around the globe.

Head of Marketing, Luke Hulley, comments: "We are delighted at Trend to be celebrating this fantastic milestone. Many of our team have served the company for over 20 years and in some cases over 30 years. Trend pride themselves on offering our customers high-quality products and first-class customer service."

Trend routers have the attributes of the old Elu models whose machines are on display in this 1963 photograph

In the beginning

Jim Phillips set up Trend in the attic of his Stanmore, London home with £100 and a little credit. This bravery came after getting his fingers burnt by investing in another company. He decided he could as well risk losing his own money as let someone else do it for him. And that pragmatism stood the entrepreneur in good stead. For the attic was abandoned for a shop in Willesden, then a move to a proper factory in Borehamwood in 1972.

Jim built his reputation on troubleshooting, solving engineering problems and built up a team of technicians who didn't fight shy of telling firms that the tools they were interested in were wrong for the job.

Such was his zeal for spreading the word that he published routing magazines and a book to keep his customers informed about the versatility of this machine used in conjunction with the cutters that Trend engineered.

Trend, by then in Imperial Way, Watford,

Trend Elu on parade in 1972

celebrated its 40th anniversary by opening a new trade centre and showroom to demonstrate power tools. By this time Jim's son Stephen had taken over as MD and a staff of 45 was producing a large range of products.

Routing Centres

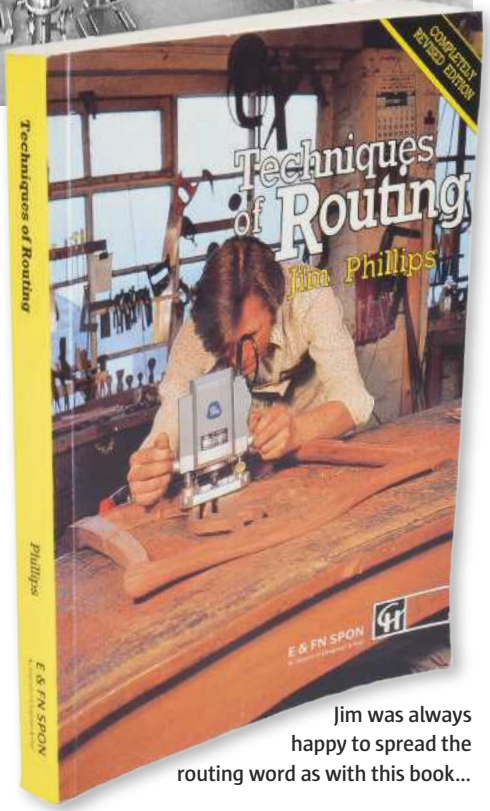
Trend now has more than 230 Routing Centres in the UK that can easily be located on the Trend website at www.trend-uk.com

Luke adds: "We ask all our loyal customers to keep an eye on our website in the coming months, read our E News and 'like' Trend on Facebook, as we will be revealing some very exciting competitions to celebrate this special milestone. Also go to its Facebook page: Trend Routing Technology.

And for competition starters, turn over the page for your chance to win a Trend T5 router and table worth £600.

Happy diamond anniversary, Trend!

Trend published its own brand of *Which?* with *Which Cutter*



Jim was always happy to spread the routing word as with this book...

...and this magazine

Today there are Trend Routing Centres all over the UK

Forty years or so on and Trend's cutters are many and very diverse

WIN a Trend T5 and table worth £600!

Answer three simple questions to be in with a good chance of winning yourself a Trend T5 router and a CraftPro CRT/MK3 table

To celebrate Trend's 60th birthday the company is offering one lucky *Good Woodworking* reader the opportunity to win a T5 1000W ¼in variable-speed 240V router, which comes with its own kitbox, plus a CraftPro CRT/MK3 table.

The T5 features soft-start to eliminate sudden movement of the machine on start up, spindle lock and hex collet nut to allow easy cutter changes and precision machined 1-piece multi-slit collet with combined nut.

Its compact design and low weight make it easy to use, especially for intricate work, and there's an adjustable side fence for guiding along a straight edge.

Built in to this router are increased power, soft-grip handles, low-profile dust spout and ergonomic spindle lock. No wonder Trend offers a 3-year extended warranty.

CraftPro table

The CraftPro router table is packed with the necessary features to maximise the versatility of all popular portable routers. Users will like its large laminated MDF table, its quick-release aluminum extrusion back fence with sliding MDF cheeks and removable 6.35mm-thick aluminium insert plate with 98mm-diameter aperture, pre-drilled for Trend TBC routers and T11 routers.

There is a Quick Raiser and a Quick Release facility for the Trend T11 router, a high back fence with fully adjustable guard assembly, fully adjustable side finger pressure and full-perimeter leg stand with adjustable feet.

Two insert rings of 31.8mm and 67.5mm diameter reduce table aperture and you also get a lead-on pin for bearing-guided curved work, an edge planing facility on the back fence of 1.4mm and 2.4mm, cable management clips, a no-volt release switch, mitre fence with zeroing and spelch block facility and bench fixing brackets.

1. What birthday is Trend celebrating?

.....

2. What is the wattage of the T5 router?

.....

3. What is the CraftPro's table made of?

.....

HOW TO ENTER

Answer the three questions above, then fill in your personal details, cut out the coupon (or photocopy it) and send it to:

Trend competition GW0415
Good Woodworking
MyTimeMedia Ltd
PO Box 269
Haslingden
Rossendale
Lancashire BB4 0DJ

The first person with the correct answers to be drawn at random will receive the router and table

The closing date for entries is 24 April 2015

Only one entry per person; multiple entries will be discarded.
Employees of MyTimeMedia Ltd and Trend are not eligible to enter this competition.

Name.....

Address.....

.....

.....

Postcode.....

Daytime telephone.....

Mobile.....

Email address.....

Please ensure your personal details are correct as they will be used to contact you if you win.
By supplying your email/address/telephone number, you agree to receive communications from MyTimeMedia Ltd and other carefully selected third parties.
If you do NOT wish to be contacted by *The Woodworker* and MyTimeMedia Ltd, please tick here: email ☐ post ☐ phone ☐.
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For our full Privacy Policy and Terms and Conditions, please go to www.getwoodworking.com

When BBC Young Carpenter of the Year Tirbhavan 'Tibby' Singh Chodha agreed to make a font cover for a church he was short of some key tools...

Tibby Singh made this font cover as a voluntary project using tools and machines supplied by Trend

Winner's on Trend

St Bartholomew's Church in Armley, Leeds may have a Grade II-listed organ but since its completion in 1872 the baptismal font has lacked a cover. So I was approached by the Father, who wanted to commission the project as a leaving gift.

As a practising Sikh, I am encouraged to perform 'seva', which translates to 'selfless service' or voluntary work to help the community. As I was so moved by what I was asked to do, I came to the conclusion that I wanted to complete this whole project, designing and developing the font cover voluntarily.

I had previously done some product tests for Trend – Routing Technology and knew it's a brand I can rely on to get the best final result. So I got in touch with my contact at Trend and explained what I was doing and asked if they were willing to support me with the project.

Tibby to judge at SkillBuild

As BBC Carpenter of the Year Tibby will be a judge for SkillBuild. Those carpentry, joinery and furniture-making candidates judged best will go on to represent the UK in Sao Paulo at Worldskills when the squad will be invited to Trend and be set a challenge by Tibby. For more on SkillBuild and Worldskills turn to p11.

Trend was, unsurprisingly, extremely enthusiastic to help in any way they possibly could and asked which tools I needed for the project.

I sent them a list of the tools and equipment I needed in order to complete the project from start to finish. With their excellent customer service they had the tools delivered the very next day.

See the video

After further discussions about the project, we thought it would be a great idea to capture the work on video, knowing that the font cover will potentially and hopefully be there for many hundreds of years to come.

I was quick to decide that I had to use oak, partly for its strength and resistance to decay. I ended up using American white oak. I engraved several symbols relating to Christianity to the top of the font cover and also included a relevant hymn from the Bible, that represents baptism, around the front edge.

All the engravings were done using Trend's CNC machine. I decided to combine a traditional approach with a contemporary finish, by incorporating a glow-in-the-dark material into the engraving.

To find out more about the project and see Tibby Singh in action go to the Trend YouTube channel or the Trend website at www.trend-uk.com.

The video has had over 10,000 views on the Facebook page so far.

First job involves a router and ellipse jig

The cover incorporates symbolic dove, seashell, oil and candle engravings

Good Woodworking Letters & Makers' notes

Write to Good Woodworking, Enterprise Way Edenbridge, Kent TN8 6HG **Email** andrea.hargreaves@mytimemedia.com

Ted's home-made cyclone...

...was made with these components

And it's all ready...

...for action

LETTER OF THE MONTH

Traffic cone cyclone

Having being interested in the cyclone Dust Deputy as made by several commercial companies and wanting at long last to put in a basic dust extraction system in my workshop, I decided to purchase one. However after finding they were not cheap I decided to make one from bits and bobs I already had.

Many years ago I had acquired a traffic cone, which has been stuck in a shed, and realised that it would possibly make a good cyclone.

So cutting it down to size and fitting the top of an air-tight lid reinforced with a smaller one, I had the basis of a cyclone. I thought I would have to seal the lid but surprisingly it fitted so well it was not necessary.

I then drilled two holes, one through the top and one through the side, and fitted some old plumbing pipes which were sealed in with silicone mastic to form the air extraction and dust inlet.

I made a circular ring from an old oak offcut sized to fit the lower end of the cone. I attached this by screwing through the cone into the oak ring. Then I drilled eight holes to attach it to the lid of the dust collection drum. Four would have been enough. Then, using silicone and bolts, this was fitted to the snap-on lid.

I was slightly worried when I came to test it, as the traffic cone was very thin and I wondered if it would just crumple but no, it worked absolutely fine. So now I will incorporate it into my extraction system.

Most of the dust ends up in the drum and not in the attached vacuum cleaner, so saves having to keep emptying it and cleaning the filters.

The only cost was for the 25l drum which was £8.45 and would still have had to be purchased with a commercial unit.

Ted Hughes, by email

We do like a practical solution to a pricey problem. **Andrea Hargreaves**

WRITE & WIN!

We always love hearing about your projects, ideas, hints and tips, and/or like to receive feedback about *GW*'s features, so do drop us a line – you never know, you might win our great Letter of the Month prize, currently a Trend Easyscribe, worth £29.99 inc VAT. Write to the address on the left for a chance to enhance your marking capability with this versatile workshop aid.

Nigel at work on a guitar

What a beautiful finish!

The range of Mirka sanders fitted with Abranet that have made life healthier for Nigel

How I cured dust sensitivity

I have to use exotic woods such as ebony, mahogany and rosewood to make the guitars and mandolins for my clients because if I do not use them it is hard to get the sound you're working towards. On top of that, my clients associate these timbers with the best-quality work and this is what I am committed to offering them. However, by using these woods I have ended up developing a sensitivity to the dust which is produced.

I had been using dust masks and had bought an air filter to try and deal with the issue but the problem still persisted. Then I saw a Mirka sander in a friend's workshop and he extolled the virtues of the product as he had been using it for a number of years. After that I purchased a Mirka CEROS and as soon as I started using it with Abranet abrasives I noticed a difference, not only in the amount of dust that was being produced, which was massively reduced, but also when I finished the job I did not feel that the dust was causing me any issues, so I didn't then have to miss days off work to recover.

The CEROS is lightweight so when I use it, it allows me to sand several instruments in a row without a problem, and when I have finished using it hand-arm fatigue is not really an issue. Additionally, the dust extraction facility I have chosen to use on the sander allows me to final sand the instrument without a mask.

The Abranet abrasives may cost more than standard sandpapers but they are durable and do not clog when they are at the end of their life span. Also, in the long run, they're far better value and the quality of finish they offer is very consistent, which is what I require for my work.

Now, I would not consider using anything but Mirka products for sanding. They offer me a high-quality finish, which my clients have become accustomed to, and the dust-free benefits have dealt with the issues the dust was causing and have allowed me to continue my career.

Nigel Forster, Newcastle upon Tyne guitar maker

It's all too easy to overlook the importance of dust protection and we've been hearing good things about Mirka products, so thanks for that Nigel and good luck with the business. We do advise always wearing a mask though. **Andrea Hargreaves**

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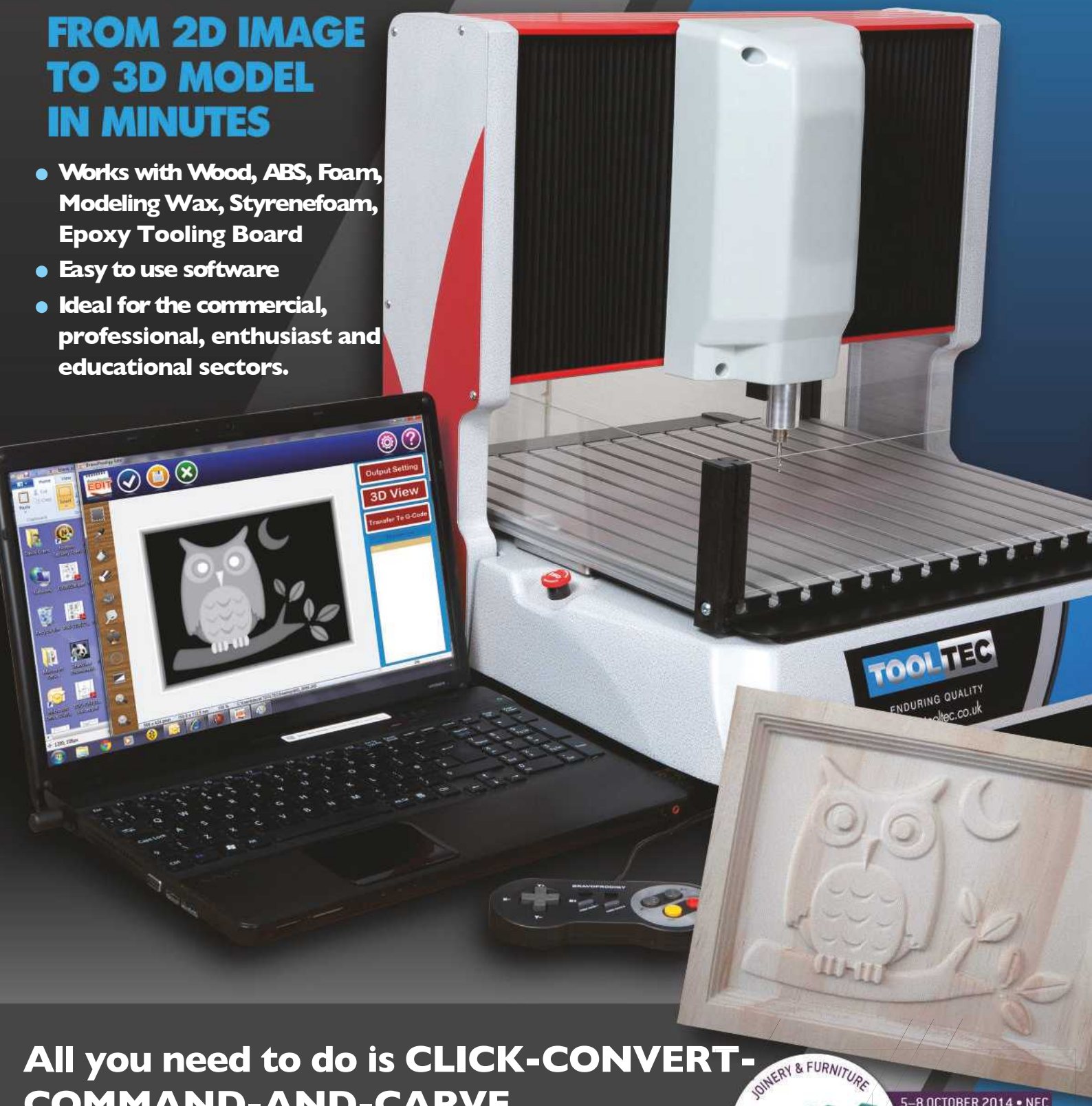

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Around the House with Phil Davy

Just when you thought you'd come across every conceivable use for power tools, along comes something that's both practical and amusing. Viewers of *Countryfile* a few weeks ago will have spotted a Bosch angle grinder fitted with a special attachment for grinding teeth. Not human teeth, fortunately, but alpaca, which need their chompers ground every so often. These placid animals seemed none the worse for their treatment. Maybe it's not so bizarre as it sounds, as Makita had a specialised equine dental tool in their range for donkey's years (sorry). Makes you wonder how native alpacas cope up in the Andes, far from a power supply!

Phil Davy, Consultant Editor

Useful kit

Kamasa adjustable clamp

Looking for a cramp that's lightweight but still has reasonable capacity and gripping power? This new one from Kamasa could be the answer. It's slightly unusual in that you can extend one or both arms outwards, so increasing capacity. You depress a steel locking button and slide the corresponding jaw outwards. To close it again, simply push the arms inwards. Extending just one arm enables you to cramp items off centre, sometimes handy when holding panel work. Maximum capacity with arms closed is 58mm; both open fully, to 144mm.

Made from high-density plastic, handles are soft grip and comfortable. Squeeze them together to exert cramping pressure, a quick-release lever opening them up again. The hard plastic swivel jaws are V-notched, so gripping dowelling or similar items is possible without the cramp slipping. Though it may not be the cheapest around, this is a pretty useful cramp for a variety of situations.

★★★★☆

Typical price: £12.79 each
Web: www.kamasa.co.uk

Workshop

Dodgy teeth...

Most woodworkers know that a portable circular saw is ideal for cutting both sheet materials and solid timber, providing it's fitted with the correct blade. My trusty Black & Decker slices effortlessly through oak worktops, but for cutting across the grain and MFC panels I use a finer blade, rather than the standard 24-tooth blade supplied with the tool. With a bore size of 16mm, the 56-tooth blade I bought a while ago was only available with a 30mm bore, so I ordered a couple of reducer bushes at the same time. These were a nice snug fit when tapped into the blade and worked a treat, resulting in a great finish when slicing end grain.

Sawing the end of a section of 40mm worktop for the counter flap on page 74, this time the blade took much longer to come to a standstill than usual. Also, the teeth had not completely passed through the timber at the end of the cut. With the tool unplugged, I checked the retaining bolt had not worked loose. This was tight, but a closer look revealed the blade could be spun by hand, while the spindle remained stationary. In fact, the blade was rotating around the reducer bush, resulting in an unbalanced, slight wobble saw effect. I removed the blade and found the bush had become a loose fit. Rather than hammer the daylights out of the bush and force it into the opening, I reverted to the standard rip blade and found the finish was not so bad after all. I'd hesitate to use this blade on melamine boards, though. I'm hoping a heavy epoxy glue will solve the problem, but it was a bit disconcerting at the time...

Spring project

Takes: a day

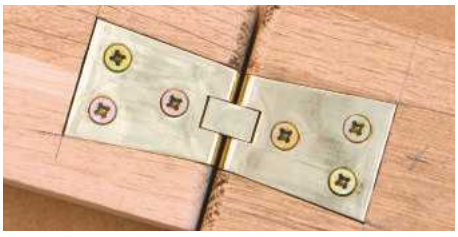
COUNTER FLAP

Get in a flap!

Phil Davy increases the work surface in his new kitchen by making a folding flap from an oak offcut

Left with a couple of sizeable oak worktop offcuts after fitting my kitchen (see *GW*286), an oversize chopping board seemed a reasonable use for one piece. As the kitchen is somewhat compact and I'd subsequently added a run of base units along another wall, increasing the working area somehow seemed a better idea. A folding flap would be perfect, as it would extend the worktop enough for food preparation, while also giving me the excuse to work at my laptop while enjoying the view across the fields through the window...

As counter flap hinges are tricky to fit, it's best to make a trial run first on a couple of small worktop offcuts. That way you'll work out just how deep the cavities for the knuckles need to be.



The best counter flap hinges are drawn brass

The supporting bracket is hinged and screwed to the end of the cupboard. As I used 19mm veneered MDF here it meant having to lip relevant edges with solid oak so that butt hinges could be recessed. Don't rely on screws holding in MDF alone.

Counter flap or backflap hinges?

Do a trial run to work out how deep the knuckle cavities need to be

There are a couple of options when it comes to hinges. You could choose cheap and not so cheerful backflap hinges, which are generally surface mounted and easy to fit. They provide little support when the flap is actually down, though. Rarely plated, these are best hidden from sight for interior work.

Although counter flap hinges are designed to enable a short section to swing over to rest on the worktop – think of Del Boy in that bar scene! – I decided to use these for my kitchen. Normally these are recessed into the upper surface and therefore on display, but on this project I chose to fit them from underneath. Although most of the time they're not visible, when the flap is not in use and folded vertically you can still see the knuckles, so they are much neater than backflap hinges.

Because counter flap leaves are dovetailed in shape and housed into the timber they're stronger than backflap hinges, restricting movement and sheer forces. A counter flap hinge actually has two pivot points, enabling the flap to open back on itself. The knuckles are on the underside, so when recessed into timber the top surface is completely flat – when fitted conventionally. Each knuckle folds through 90°, so the two combined means the flap can open through 180°.

Counter flap hinges are sturdier than backflaps at about 3mm thick, as opposed to 1mm thickness for steel backflaps. Finishes are polished brass or chrome and cost about £7 per pair. Best-quality counter flap hinges are drawn brass with flaps 4mm thick, but reckon on about £35 per pair for these.

1 Cut flap to size, running saw against guide fence for accuracy. Clean up edges with bench plane

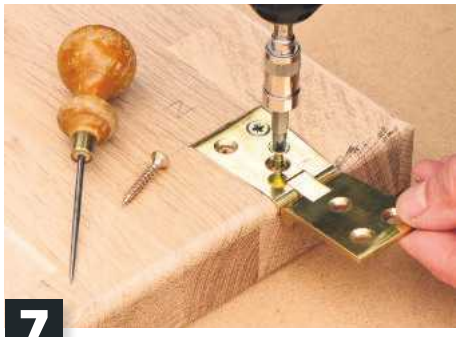
2 Carefully mark position of hinges on timber and draw around each leaf. Mark thickness with gauge

3 Set router cutter to thickness of hinge leaf. Rout out full depth of recess, avoiding edges

4 Carefully chop recesses back to pencil lines with sharp chisel and remove waste in corners

5 Check hinge leaf is snug fit upside down in recess, trimming edges with chisel if necessary

6 Mark and chop out cavity for hinge knuckle. Insert leaf and check operation of hinge



7 Mark hole centres with bradawl, then drill and fit each hinge to flap with 4.5mm screws

8 Rout edges with bearing-guided rounding-over bit to match existing worktop. Watch for breakout

9 Use marker pen on underside of each leaf to ensure hinges are fitted to correct recesses on flap

10 Mark and cut recesses in existing worktop. Position flap, drill holes and screw hinges

11 Check flap opens and closes smoothly against worktop with no fouling

12 Remove hinges. Fill any defects and sand with 180-grit abrasive. Dampen surface and re-sand

Spring project

Takes: a day

COUNTER FLAP

13 Cut support bracket from veneered MDF. It should be at least two-thirds depth of flap

14 Glue lipping to MDF with cramps or panel pins. Drill pilot holes at ends to prevent any splitting

15 Remove pins and trim lipping flush with plane. Be careful not to damage veneer surface

16 Remaining edges of MDF can be concealed with iron-on oak lipping. Trim flush when dry

17 Recess 75mm butt hinges into edge of narrow panel that will be attached to end of the unit

18 Mark off position of hinges on support bracket. Cut recesses into edge and fix in place

19 Check support bracket swings freely when attached to narrow panel and make any adjustments

20 Cramp narrow panel and screw to end of kitchen unit. Bracket should be tight under the worktop

21 Bracket should be free to open to 90°. When closed it's flush against unit

22 Carefully screw folding flap to existing worktop. Drill the underside for oak dowel to act as stop

23 When not in use the flap simply drops down and will hide the hinged support bracket

24 With hinges and support correctly fitted, the flap will take a reasonable amount of weight

Diverse tool

While there's a plethora of cordless sanders on the market, for many tasks it's hard to beat a good old 240V machine. Although these may not be as convenient as battery models, obviously you'll never run out of juice – unless there's a power cut, of course. This multi-pad sander from Ryobi was launched a while ago and offers a bit more than some standard budget tools. Not only does it have a delta-pattern hook & loop sanding pad, but the tool can be changed to a regular third-sheet orbital sander simply by changing the pad. As well as this, a further flip-out pad at the front enables you to get tight into corners, too.

Rated at 180W, speed range is from 6000 to 12,000opm. Electronic speed control is selected via a thumbwheel on top, which is easy to reach. Instead of a trigger, the on/off switch is a chunky push-through button. Like other 240V tools from Ryobi, this sander features a Livetool indicator, a blue LED near the cable exit that lights as soon you connect the tool to the mains supply. While it's quite a good safety feature for indoor use, outdoors the LED is barely noticeable. Overall weight is 1.25kg, while cable length is 2.5m.

There's no port for a vacuum hose, in common with many budget sanders. For dust collection Ryobi has adopted a rigid plastic box system, a tight push fit onto an outlet at the rear. Removing the lid reveals a replaceable paper filter, cleaned by tapping the box upside down.

★★★★☆
Price: £59.99
Bosch
Made in: China
Web: www.ryobitools.eu

There's a delta-pattern hook & loop sanding pad


This top-mounted thumbwheel makes for easy speed control

The dust box fits tightly onto the rear outlet


Three hex screws must be removed before the sanding base can be changed

Changing bases

Changing the sanding base takes a while as you need to remove three hex screws. These secure either base to the tool itself and are a bit fiddly to fit, so swapping one base to the other is unlikely to be a job you do that often. That said, having alternative sanding options is useful. A hex key is provided, though unfortunately there's nowhere to store this on the tool itself.

Although the third-sheet plastic base was slightly twisted on my test model, this didn't seem to affect sanding performance at all. As well as hook & loop abrasives, you can fit regular (non Velcro) sheets, which makes sanding more economical. A pair of sprung clips is opened out to operate the two paper clamps. Like most budget sanders these don't provide the greatest clamping pressure, which you only tend to find on pro tools to be honest.

To access the tiny detail sanding pad at the front, you pull open a clear plastic flap and flip the pad down, which locks in place. Again, this has a hook & loop base. To close it up again you slide a quick-release button and reverse the process. This small pad is linked to the delta base, so cannot be used with the rectangular base fitted.

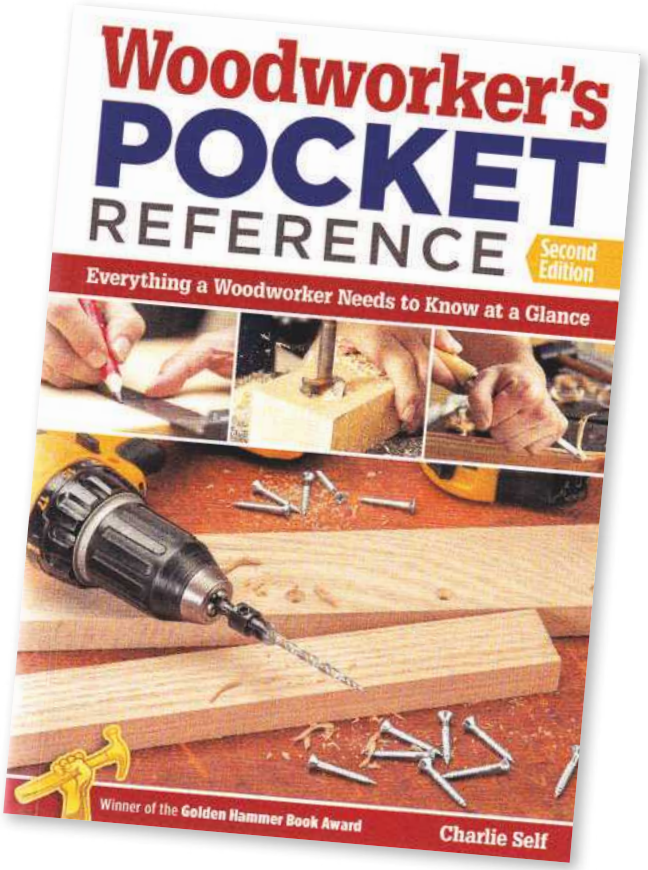
Conclusion

This is a neat little tool if you're looking for a sander for occasional use on a variety of woodworking tasks. Sanding performance was absolutely fine, but it's not industrially rated so don't expect it to perform for hours on end. But for those small finishing jobs it's more than capable. It comes in a neat zipped holdall, with plenty of space for abrasives. And unlike some manufacturers, Ryobi provides a decent amount of sanding sheets, too.

Book reviews

Woodworker's Pocket Reference

By Charlie Self



At first glance, this compact guide may seem a bit too basic for most woodworkers. Although there's nothing on woodwork techniques as such, dig a little deeper and there's plenty of useful stuff here. From the dozen or more pages on common timbers, with sample images, to workshop safety and maths, it's actually quite an ambitious little book. Chapters include fasteners, joints, wood finishing, hand and power tools, workbenches and shop setup. Some information may not be that relevant to the UK – humidity map of the USA, ordering lumber and so on – but that's splitting hairs.

From vintage moulding planes to modern plunge-cut track saws, there are enough basic facts should you be looking to upgrade your tool kit. Several included charts are excellent, particularly one comparing adhesives. Even some American brands are relevant here, with many glues now available in Britain. Other pages cover common formulae such as crown moulding angles and sharpening bevels for various tools. Even the imperial to metric conversion chart is spot on, while the glossary is comprehensive. On the downside, some photos are pretty small and there are no captions.

At under a tenner, this book would be perfect for students or anyone starting out in woodwork. It's small enough to keep in a drawer – not sure about a pocket... – for reference whenever.

★★★★☆

Published by Fox Chapel
Price: £8.99
Web: www.thegmcgroup.com

The Complete Kitchen Cabinetry

By Robert Lang

Building your own kitchen from scratch may seem daunting to woodworkers who don't have access to big machinery or space for cutting panels accurately. The actual process is relatively straightforward if you think of units as individual boxes that fit together to make the most of what can be a limited space. Of course, with insufficient knowledge and skills you could spend plenty on materials but end up with mediocre results. Sequence is crucial in this type of project, and this guide should certainly help anyone contemplating what can be a lengthy process.

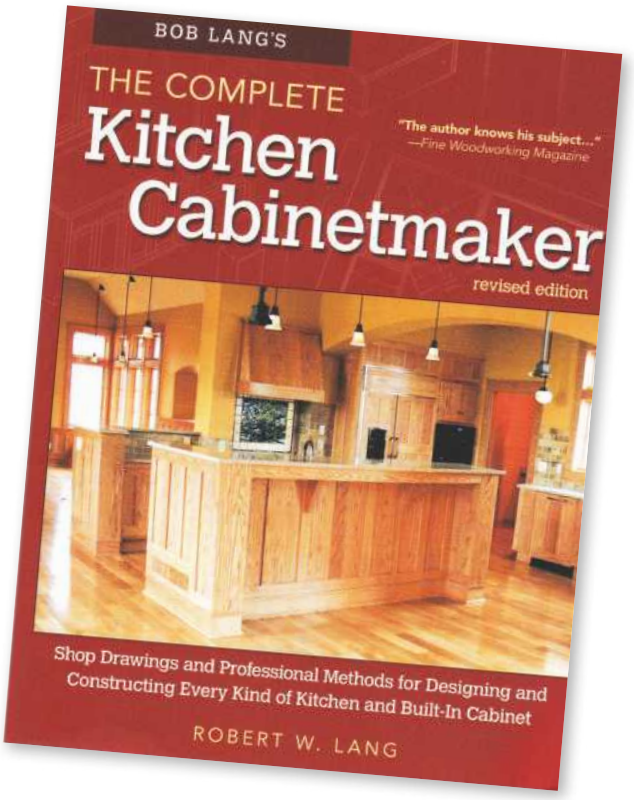
Lang differentiates between European frameless cabinets and those with face frames. Comprehensive details are given on building both types. He stresses the importance of lists: room layout, cutting lists, hardware schedules, even a skills list. Joint construction, materials and fasteners are discussed and compared at length, before moving on to techniques for constructing units, finishing, installation and worktops, though only plastic laminate is covered rather than solid timber.

Drawings are clear and well annotated, though dimensions are strictly imperial. The front features colour photos of several impressive kitchens, but the book reverts to black & white images once under way, which is odd, reminding me of a machinist's training manual.

Still, this an authoritative guide containing loads of useful information, without overcomplicating matters. Lang says that 'avoiding disaster' is what this book is about. Should you be planning to build a kitchen, it's worth a closer look.

★★★★½

Published by Fox Chapel
Price: £16.99
Web: www.thegmcgroup.com



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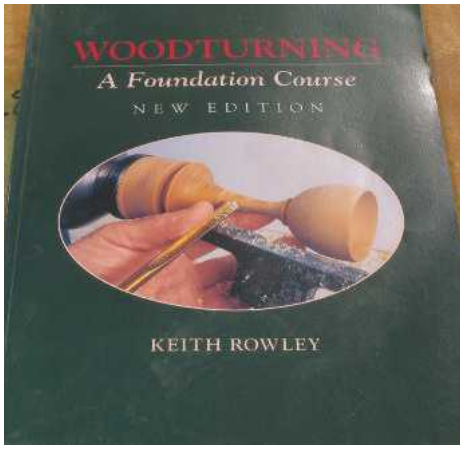
Ear, 'ere

Les Thorne pays tribute to turning legend Keith Rowley with this earring stand

When hobby woodturning took off in the 90s there were very few modern books on the subject so newcomers would find it difficult to acquire knowledge. Now it's so easy with the internet as well as many books and DVDs on the market. Thankfully some of the turners of the time decided to share their skills with us: Dennis White's videos were an inspiration as was Stuart Mortimer's book on barley twists, *Techniques of Spiral Work* (Cambium), but Keith Rowley's *Woodturning, a Foundation Course* (GMC) was without doubt the bible. When my father had his woodturners' supplies shop every beginner went out of the door clutching a copy, and I would still recommend it today for clear and simple instruction style.

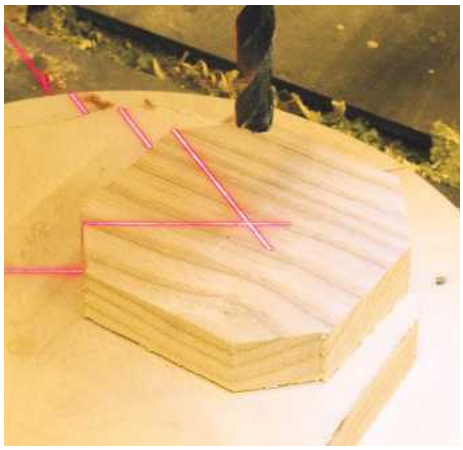
This month, however, I have taken a project from *Keith Rowley's Woodturning Projects* (GMC and available from Amazon). It is a type of turning I once jokingly called Marmite treen because when I used to go to craft fairs people either loved it or hated it. The detailing appeals to me; as a spindle turner I like the stem as well as the clean lines of the piece. One little experiment for me on this project was to make the ebony stem gloss and the ash parts matt. This will hopefully show off the timbers to their best.



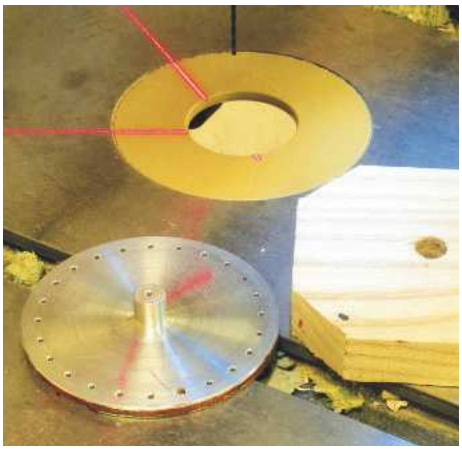
▲ Pic.1 The foundation book itself: Les had the pleasure of meeting and talking to Keith on a few occasions. He was a humble man of great skill, a real craftsman

▲ Pic.2 A finished earring tidy and the wood needed, two pieces of 80 x 80mm ash planed 15mm thick, a piece of contrasting timber like this ebony 125mm long by 20mm square

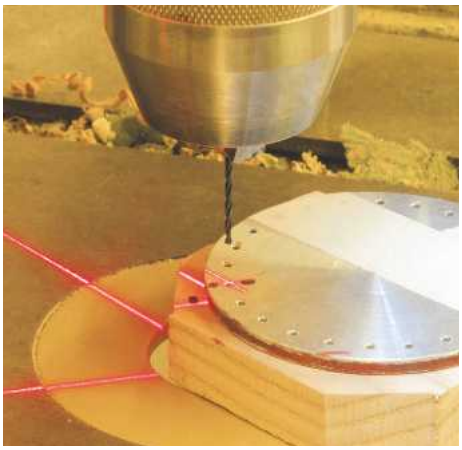
▲ Pic.3 On blanks this small Les tends not to cut them round before starting to turn. It will be difficult to cut such a small circle even with a 10mm blade so taking the corners off is sufficient



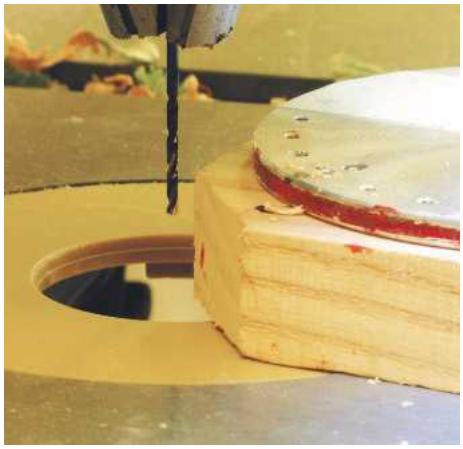
▲ Pic.4 Each of the ash blanks will have a hole to accept the stems; a 10mm hole will suit the screw chuck that he uses. For drilling accuracy he takes advantage of the laser on his drill press



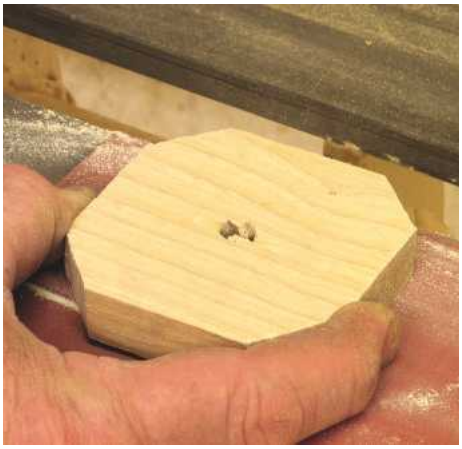
▲ Pic.5 This aluminium drilling jig for the holes to accept the earrings has a 10mm stem to fit the hole in the blank's centre. You could make a similar jig from MDF



▲ Pic.6 Les is going to use a recess in the bottom for the chuck, to act as the stem mortise. The dividers are set on the diameter required, the left-hand point mark lining up with the right



▲ Pic.7 He has fixed his depth stop just short of half way. If you drill any deeper the bit can wonder off line and will often break as you exit the hole



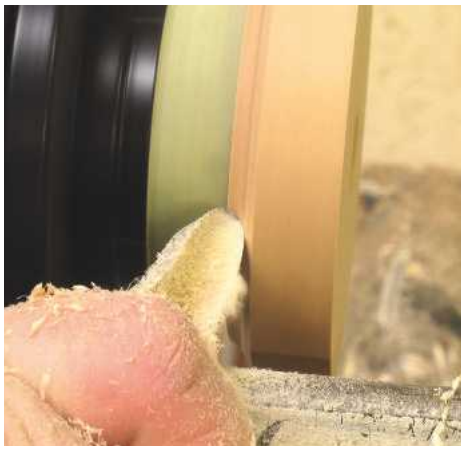
▲ Pic.8 If you finish the underside of the top now you shouldn't need to do anything to it on the lathe; it's quick and easy to sand it by going through the grades with the abrasive on a flat surface

▲ Pic.9 Once mounted on the screw chuck, make it round with the spindle or bowl gouge. Work away from the back surface so you don't get any breakout on the underside

▲ Pic.10 Offering up the drilling jig to the top will give you an idea of the diameter required. Going to about 75mm, which is just below the diameter of the jig, will work better with some smaller earrings

▲ Pic.11 As the work gets thinner you should now see the holes appearing. Les likes to do a push cut with the bevel rubbing as this will give a better finish with less chance of the wood breaking out

▲ Pic.12 The edge of the top needs to be quite thin, around 2 to 3mm is perfect. He likes to put a little detail on the top and is using the point of a skew to scrape some decorative lines



▲ Pic.13 Mount the piece for the base onto the screw, which he has shortened with a packing piece. With the gouge carefully turn a concave shape on the bottom rim

▲ Pic.14 Les likes nice small crisp details. Wherever possible he frames a bead with fillets either side; here he's using a freshly sharpened parting tool to give the best finish from the tool

▲ Pic.15 Because he is working on side grain the bead must be turned the opposite way than usual on spindle work, the tool starting at the bottom of the profile and being worked towards the top

▲ Pic.16 This close-up shows you the fine detail that can be achieved with high speeds and sharp tools. Very small details are impossible to sand without ruining the shape

▲ Pic.17 Les is using the Signature spindle gouge to hollow out the base; his own added design feature, it allows the user to place some loose jewellery into it

▲ Pic.18 This picture clearly shows the bevel of the tool in contact with the wood. This can only be achieved by dropping the tool handle during the cut

▲ Pic.19 The baize on the bottom will be sat into a groove. Les has ground an old parting tool – any old tool will do – so it has a 1mm cutting tip to cope with the small cut

▲ Pic.20 Set the toolrest around the back and make a cut around 45° into the base; this should be around 2mm deep to accept the baize

▲ Pic.21 Mount the ebony for the stem between centres and make it round with the roughing gouge. Turn the whole piece down to 18mm, the maximum diameter of the stem

▲ Pic.22 Mark out the important details such as the spigots at the base and the one to go through the top, leaving enough waste at the finial end to allow for the hole left by the tailstock centre

▲ Pic.23 Size the spigot with a parting tool. Les is using a small drive in the headstock so he can get then get the spigot right down to the required 10mm for the hole in the base

▲ Pic.24 He needs to tie the little flat on the top with the base of the finial. The measurement will be transferred to the stem with the Vernier callipers

▲ Pic.25 All the important sizing cuts are now done. The small fillet above the top spigot is the right diameter for the flat on the top. Take care that the piece doesn't become too weak

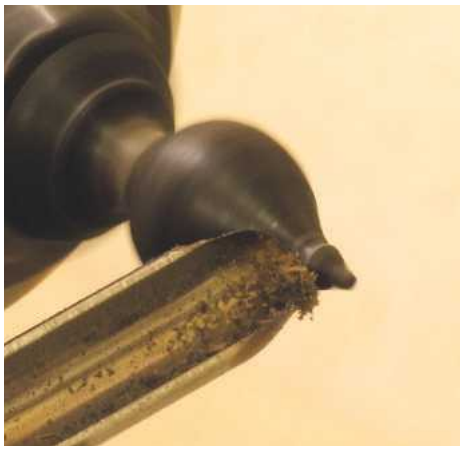
▲ Pic.26 The gouge is an easier tool to use on the spindle than the skew chisel. You can even do the fillets with the tool. Here the gouge is rolled round to do the small cove at the base of the finial

▲ Pic.27 The parallel section to the right of the tool is the spigot that will fit through the top. The tool he is using is the new 10mm Signature spindle gouge

▲ Pic.28 The spindle gouge is ideal for rolling this tiny bead at the base end; you could however use a bead-forming tool as these work very well on dense timber like ebony

▲ Pic.29 As the piece gets weak you can support the work with your fingers as you are turning. This is a technique worth practising as it will come in handy for thin turning

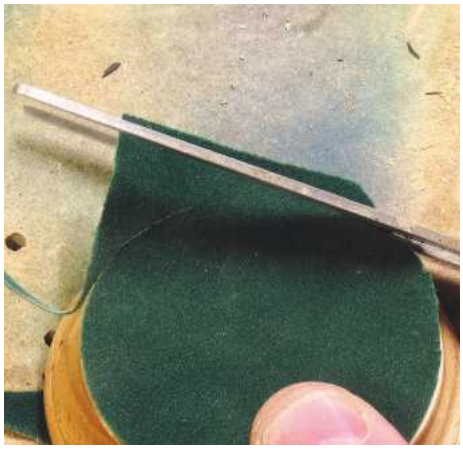
▲ Pic.30 After sanding through the grits, for safety finish the work with a Nyweb pad, which tends not to grab the spinning work; this one is the equivalent of 0000 wire wool



▲ Pic.31 After cutting off the finial, grip its spigot in a chuck to finish the pointed end. Les is using a Jacobs'-style chuck in the headstock; this works perfectly on small work like this

▲ Pic.32 Les wants the ebony to be super shiny and there's no better finish than gloss lacquer. Normally you would need to sanding-seal first but ebony is so dense that's unnecessary

▲ Pic.33 The best matt finish for ash is lemon oil. The timber will need a couple of coats. Leave to dry and cut back with the Nyweb between applications



▲ Pic.34 Don't get oil on the base as the self-adhesive baize will not stick to it. With the baize on the base, trim round with a pair of scissors to 1-2mm over the base groove

▲ Pic.35 Use the back of a blunt knife to push the baize into the groove. Take your time doing this and it will end up really neat, much better than just sticking it onto the bottom

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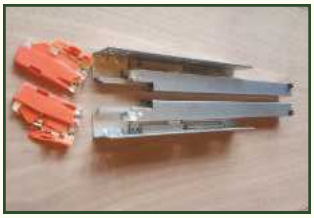


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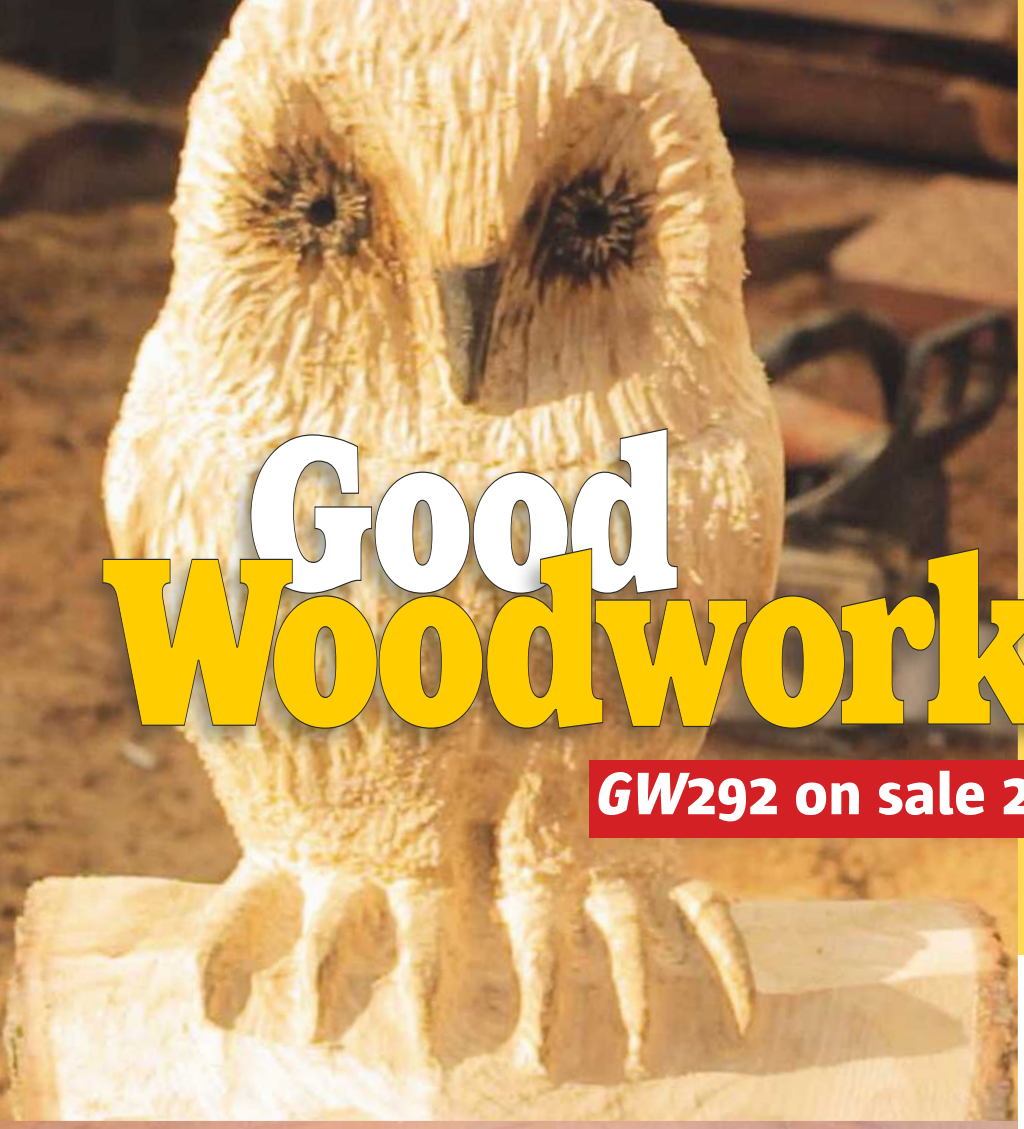

Good Woodworking

NEXT MONTH

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CHAINSAW CARVER

Because of its potential danger, the artistry that can be created by chainsaw carving has an added thrill about it – witness the crowds who flocked to see it demonstrated at the Westonbirt festival. David Vickers catches up with old friend Chris Bain to film how he – safely – machined this owl

PROUD AS PEACOCK...

...or he ought to be: from a single garage near Scarborough Shane Skelton is taking on the might of Lie Nielson. Here he is making very special dovetail saws featuring a rigid, thin and shallow blade and bearing the motif of a peacock with an acorn in its beak, in brass on a rosewood handle

CARCASS WORK

With the skills already delivered on his foundation course Michael Huntley declares you almost ready to start making furniture. But first comes a lesson on the shelving for a bookcase

PLUS...

...all your favourites, with Dave Roberts back with his usual blend of quirky but ultimately common sense solutions, Andy King casting his eagle eyes over the latest kit, Edward Hopkins causing and dealing with workshop mayhem, Phil Davy Around the House and Les Thorne making his lathe work overtime

Finishing Touch

New series
Where tools came from

Michael Huntley's history of the screw

Threads were invented, as far as we know, by Archimedes or one of his contemporaries. Initially the concept was probably to apply pressure, as in a wine press, but then the idea of using the lever of the thread to hold a nut that secured two components came about. However that was in a parallel-sided bolt or stud. The big advance came when the screw with a point was invented. In the present day there are several systems in use but there is a suggestion that Robertson's screws are still the best

Screws timeline	
365BC	Archytas of Tarentum credited by some historians as inventing the screw
287-212BC	Drill inventor Archimedes definitely invented the Celestial Globe, Endless Screw and water screw
Antiquity	Screws made by hand-filing the helix. Template was made from triangular sheet of soft metal
Antiquity	Several writers clearly describe screw threads, probably parallel threads, nuts and bolts. NB The Romans did not use pointed screws, only parallel-threaded bolts
Roman Empire	Linen press using a screw seen in a Pompeian fresco
1st century BC	Marcus Vitruvius Pollio refers to press worked by turning screws
10AD-70AD	Hero of Alexandria made several presses, and taps and dies. Hero's screw tap is now described and shown in Scott Landis's *The Workbench Book*, pp122-123
1st Century AD	Josephus describes male and female screws joining structural components
After the Romans there follows a big gap until...	
1404	Oxford English Dictionary says first use of the word screw [spelt screws sic]
1400s	Guttenberg printing press with screw
1475	Matchlock mechanisms secured to the gunstock by slotted screws
1480	*Medieval Housebook* shows manacles fastened with slotted screws and also a picture of a screw-cutting lathe
1500s	In the 16th century screws were relatively expensive compared with nails
1500s	Leonardo da Vinci designed a screw-cutting machine that was perhaps never built
1550	According to the horological author FW Britten, screws in clocks were unknown before this
1588	A Ramelli in Paris shows screws
1693	*Moxo Exercises*, published from his shop in London, describes methods to make nuts and bolts to attach strap hinges to doors. But these are driven with a spanner not slotted for screwdriver
1765	*Encyclopedie* says that the region of Forez in France specialised in screws, ½in to 5in. But still so expensive that sold individually. Heads either slotted or square. Has a picture of a screwdriver
1760	In UK screws were made in the Midlands. All had inaccurate threads cut by eye or with simple jig. Wyatt brothers patented method of cutting screws using lead screw so individual screw could now be made in seconds not minutes
1772	Roubou mentions a tournevis operated in a brace. He also refers to 'ready made screws' for the cabinetmaker.
1777	Jesse Ramsden invented a screw-cutting lathe with 4 thou precision!
1790	Midlands screw factory producing 16,000 a day
1797	Henry Maudsley makes screw-cutting lathe with 36in regulating screw. Longest so far
1800	Screwdrivers recorded in toolboxes from this date
1840	George Nettlefield factory set up. Became GKN eventually
1841	Maudsley pupil Joseph Whitworth began the standardisation of screw threads that we have today
1849	Sloan's patent for pointed screws
1907	Robertson's patent
1936	Phillips' patent used in a Cadillac. Phillips' screws are estimated to be 30% faster than slotted

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